



STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION

Division of Air Pollution Control
9th Floor, L & C Annex
401 Church Street
Nashville, TN 37243-1531

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June 30, 2009

Mr. T. D. Hayes
Director, Manufacturing & Facilities Support Services
BAE SYSTEMS Ordnance Systems Inc.
Holston Army Ammunition Plant
4509 West Stone Drive
Kingsport, TN 37660

Re: Title V Permit for 37-0028

Dear Mr. Hayes:

Please find enclosed your Title V Major Source Operating Permit Number 558406. This permit consists of 58 pages and 16 attachments. It is important that you read and understand the requirements specified in this permit. While all requirements of your Title V permit are important, the following table summarizes the most important dates associated with your Title V Permit:

Permit Issue Date	June 30, 2009
Annual Allowable Based Emission Fees: (see paragraph E1)	Billing Date —April 1, 2009 Due Date —July 1, 2009 and each subsequent year.
TAPCD Semiannual Report: (see paragraph E2)	Report Period — January 1, 2009, to June 30, 2009 and each 6-month period thereafter. Due Date — August 29, 2009 and each 6-month period thereafter.
TAPCD Annual Compliance Certification: (see paragraph E2)	Compliance Period — July 1, 2008, to June 30, 2009 and each subsequent year. Due Date —August 29, 2009 and each subsequent year.
Application Renewal Period	Between October 2, 2013, and December 31, 2013.
Permit Expiration Date	June 29, 2014

Please note that penalties associated with noncompliance with any of the requirements of this Title V permit are significant. If you violate any of the requirements of this permit, you may be subject to a civil penalty of up to \$25,000.00 (TWENTY FIVE THOUSAND DOLLARS) PER DAY FOR EACH DAY OF VIOLATION.

Mr. T. D. Hayes
Director, Manufacturing & Facilities Support Services
BAE SYSTEMS Ordnance Systems Inc.
Holston Army Ammunition Plant
June 30, 2009
Page 2 of 2

If you have any questions about this permit, please call Moe Baghernejad at 615-532-0594.

Sincerely,

John A. Trimmer

for Barry R. Stephens, P. E.
Technical Secretary
Tennessee Air Pollution Control Board

CC: Johnson City EFO
Company File
Green File
SMB

**TENNESSEE AIR POLLUTION CONTROL BOARD
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
NASHVILLE, TENNESSEE 37243-1531**



OPERATING PERMIT (TITLE V) Issued Pursuant to Tennessee Air Quality Act

This permit fulfills the requirements of Title V of the Federal Clean Air Act (42 U.S.C. 7661a-7661e) and the federal regulations promulgated thereunder at 40 CFR Part 70. (FR Vol. 57, No. 140, Tuesday, July 21, 1992 p.32295-32312). This permit is issued in accordance with the provisions of paragraph 1200-3-9-.02(11) of the Tennessee Air Pollution Control Regulations. The permittee has been granted permission to operate an air contaminant source in accordance with emissions limitations and monitoring requirements set forth herein.

Date Issued: June 30, 2009

Permit Number: 558406

Date Expires: June 29, 2014

Issued To:

Holston Army Ammunition Plant
BAE Systems Ordnance Systems Inc.
(HSAAP Area B Operations)

Installation Address:

4509 West Stone Drive
Kingsport

Installation Description:

Explosives Manufacturing;
Chemical Processing Operations for Preparation of RDX and HMX Explosives;
Source Listing in Table of Contents

Emission Source Reference No.: 37-0028

Renewal Application Due Date: Between October 2, 2013
and December 31, 2013

Primary SIC: 28

Responsible Official:

Name: T.D. Hayes
Title: Director, Manufacturing and Facilities Support BAE Systems Ordnance Systems Inc.

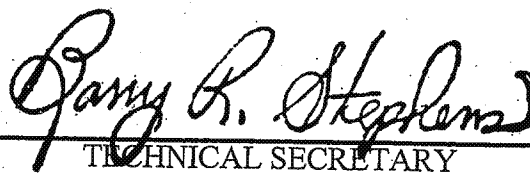
Facility Contact Person:

Name: James Ogle
Title: Environmental Affairs Specialist
Phone: 423-578-6231

Information Relied Upon:

Title V Permit renewal application dated August 4, 2005, and revision dated December 18, 2008

(Continued on the next page)


TECHNICAL SECRETARY

No Authority is Granted by this Permit to Operate, Construct, or Maintain any Installation in Violation of any Law, Statute, Code, Ordinance, Rule, or Regulation of the State of Tennessee or any of its Political Subdivisions.

POST AT INSTALLATION ADDRESS

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SECTION A

GENERAL PERMIT CONDITIONS

A permit issued under the provisions of paragraph 1200-3-9-.02(11) is a permit issued pursuant to the requirements of Title V of the Federal Act and its implementing Federal regulations promulgated at 40 CFR, Part 70.

- A1. **Definitions.** Terms not otherwise defined in the permit shall have the meaning assigned to such terms in the referenced regulation.

TAPCR 1200-3

- A2. **Compliance requirement.** All terms and conditions in a permit issued pursuant to paragraph 1200-3-9-.02(11) including any provisions designed to limit a source's potential to emit, are enforceable by the Administrator and citizens under the Federal Act.

The permittee shall comply with all conditions of its permit. Except for requirements specifically designated herein as not being federally enforceable (State Only), non-compliance with the permit requirements is a violation of the Federal Act and the Tennessee Air Quality Act and is grounds for enforcement action; for a permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. Non-compliance with permit conditions specifically designated herein as not being federally enforceable (State Only) is a violation of the Tennessee Air Quality Act and may be grounds for these actions.

TAPCR 1200-3-9-.02(11)(e)2(i) and 1200-3-9-.02(11)(e)1(vi)(I)

- A3. **Need to halt or reduce activity.** The need to halt or reduce activity is not a defense for noncompliance. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit. However, nothing in this item shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in assessing penalties for noncompliance if the health, safety or environmental impacts of halting or reducing operations would be more serious than the impacts of continuing operations.

TAPCR 1200-3-9-.02(11)(e)1(vi)(II)

- A4. **The permit.** The permit may be modified, revoked, reopened, and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.

TAPCR 1200-3-9-.02(11)(e)1(vi)(III)

- A5. **Property rights.** The permit does not convey any property rights of any sort, or any exclusive privilege.

TAPCR 1200-3-9-.02(11)(e)1(vi)(IV)

- A6. **Submittal of requested information.** The permittee shall furnish to the Technical Secretary, within a reasonable time, any information that the Technical Secretary may request in writing to determine whether cause exists for modifying, revoking and reissuing, or termination of the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Technical Secretary copies of records required to be kept by the permit. If the permittee claims that such information is confidential, the Technical Secretary may review that claim and hold the information in protected status until such time that the Board can hear any contested proceedings regarding confidentiality disputes. If the information is desired by EPA, the permittee may mail the information directly to EPA. Any claims of confidentiality for federal purposes will be determined by EPA.

TAPCR 1200-3-9-.02(11)(e)1(vi)(V)

- A7. **Severability clause.** The requirements of this permit are severable. A dispute regarding one or more requirements of this permit does not invalidate or otherwise excuse the permittee from their duty to comply with the remaining portion of the permit.

TAPCR 1200-3-9.02(11)(e)1(v)

A8. Fee payment.

(a) The permittee shall pay an annual major source emission fee based upon the responsible official's choice of actual emissions or allowable emissions. An emission cap of 4,000 tons per year per regulated pollutant per major source SIC Code shall apply to actual or allowable based emission fees. A major source annual emission fee will not be charged for emissions in excess of the cap (s) or for carbon monoxide.

(b) Major sources who have filed a timely, complete operating permit application in accordance with 1200-3-9-.02(11), shall pay allowable emission based fees until the beginning of the next annual accounting period following receipt of their major source operating permit. At that time, the permittee shall begin paying their annual emission fee based upon their choice of actual or allowable based fees, or mixed actual and allowable based fees as stated under SECTION E of this permit. Once permitted, altering the existing choice shall be accomplished by a written request of the major source, filed in the office of the Technical Secretary at least one hundred eighty days prior to the expiration or reissuance of the major source operating permit.

(c) Major sources must conform to the following requirements with respect to fee payments:

1. If a major source choosing an allowable based annual emission fee wishes to restructure its allowable emissions for the purposes of lowering its annual emission fees, a mutually agreed upon, more restrictive regulatory requirement may be established to minimize the allowable emissions and thus the annual emission fee. The more restrictive requirement must be specified on the permit, and must include the method used to determine compliance with the limitation. The documentation procedure to be followed by the major source must also be included to insure that the limit is not exceeded. Restructuring the allowable emissions is permissible only in the annual accounting periods of eligibility and only, if the written request for restructuring is filed with the Technical Secretary at least 120 days prior to the beginning of the annual accounting period of eligibility. These periods of eligibility occur upon expiration of the initial major source operating permit, renewal of an expired major source operating permit or reissuance of a major source operating permit.

2. Major sources paying on allowable based emission fees will be billed by the Division no later than April 1 prior to the end of the accounting period. The major source annual emission fee is due July 1 following the end of the accounting period.

3. Major sources choosing an actual based annual emission fee shall file an actual emissions analysis with the Technical Secretary which summarizes the actual emissions of all regulated pollutants at the air contaminant sources of their facility. Based upon the actual emissions analysis, the source shall calculate the fee due and submit the payment and the analysis each July 1st following the end of the annual accounting period.

4. Major sources choosing a mixture of allowable and actual based emission fees shall file an actual emissions and allowable emissions analysis with the Technical Secretary which summarizes the actual and allowable emissions of all regulated pollutants at the air contaminant sources of their facility. Based upon the analysis, the source shall calculate the fee due and submit the payment and the analysis each July 1st following the end of the annual accounting period.

The mixed based fee shall be calculated utilizing the 4,000 ton cap specified in subparagraph 1200-3-26-.02(2)(i). In determining the tonnages to be applied toward the regulated pollutant 4,000 ton cap in a mixed based fee, the source shall first calculate the actual emission based fees for a regulated pollutant and apply that tonnage toward the regulated pollutant's cap. The remaining tonnage available in the 4,000 ton category of a regulated pollutant shall be subject to allowable emission based fee calculations for the sources that were not included in the actual emission based fee calculations. Once the 4,000 ton cap has been reached for a regulated pollutant, no additional fee shall be required.

5. Major sources choosing to pay their major source annual emission fee based on actual based emissions or a mixture of allowable and actual based emissions may request an extension of time to file their emissions analysis with the Technical Secretary. The extension may be granted by the Technical Secretary up to ninety (90) days. The request for extension must be postmarked no later than July 1 or the request for extension shall be denied. The request for extension to file must state the reason and give an adequate explanation.

An estimated annual emission fee payment of no less than eighty percent (80%) of the fee due July 1 must accompany the request for extension to avoid penalties and interest on the underpayment of the annual emission fee. A remaining balance due must accompany the emission analysis. If there has been an overpayment, a refund may be requested in writing to the Division or be applied as a credit toward next year's major source annual emission fee. The request for extension of time is not available to major sources choosing to pay their major source annual emission fee based on allowable emissions.

6. Newly constructed major sources or minor existing sources modifying their operations such that they become a major source in the midst of the standard July 1st to June 30th annual accounting period, shall pay allowable based annual emission fees for the fractional remainder of the annual accounting period commencing upon their start-up. At the beginning of the next annual accounting period, the "responsible official" of the source may choose to pay annual emission fees based on actual or allowable emissions or a mixture of the two as provided for in this rule 1200-3-26-.02.
- (d) Where more than one (1) allowable emission limit is applicable to a regulated pollutant, the allowable emissions for the regulated pollutants shall not be double counted. Major sources subject to the provisions of paragraph 1200-3-26-.02(9) shall apportion their emissions as follows to ensure that their fees are not double counted.
1. Sources that are subject to federally promulgated hazardous air pollutant standards that can be imposed under Chapter 1200-3-11 or Chapter 1200-3-31 will place such regulated emissions in the specific hazardous air pollutant under regulation. If the pollutant is also in the family of volatile organic compounds or the family of particulates, the pollutant shall not be placed in that respective family category.
 2. A miscellaneous category of hazardous air pollutants shall be used for hazardous air pollutants listed at part 1200-3-26-.02(2)(i)12 that do not have an allowable emission standard. A pollutant placed in this category shall not be subject to being placed in any other category such as volatile organic compounds or particulates.
 3. Each individual hazardous air pollutant and the miscellaneous category of hazardous air pollutants is subject to the 4,000 ton cap provisions of subparagraph 1200-3-26-.02(2)(i).
 4. Major sources that wish to pay annual emission fees for PM₁₀ on an allowable emission basis may do so if they have a specific PM₁₀ allowable emission standard. If a major source has a total particulate emission standard, but wishes to pay annual emission fees on an actual PM₁₀ emission basis, it may do so if the PM₁₀ actual emission levels are proven to the satisfaction of the Technical Secretary. The method to demonstrate the actual PM₁₀ emission levels must be made as part of the source's major source operating permit in advance in order to exercise this option. The PM₁₀ emissions reported under these options shall not be subject to fees under the family of particulate emissions. The 4,000 ton cap provisions of subparagraph 1200-3-26-.02(2)(i) shall also apply to PM₁₀ emissions.

TAPCR 1200-3-26-.02 (3) and (9) and 1200-3-9-.02(11)(e)1(vii)

- A9. **Permit revision not required.** A permit revision will not be required under any approved economic incentives, marketable permits, emissions trading and other similar programs or process for changes that are provided for in the permit.

TAPCR 1200-3-9-.02(11)(e)1(viii)

- A10. **Inspection and entry.** Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Technical Secretary or his authorized representative to perform the following for the purposes of determining compliance with the permit applicable requirements:
- (a) Enter upon, at reasonable times, the permittee's premises where a source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;
 - (b) Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;
 - (c) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and
 - (d) As authorized by the Clean Air Act and Chapter 1200-3-10 of TAPCR, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit or applicable requirements.
 - (e) "Reasonable times" shall be considered to be customary business hours unless reasonable cause exists to suspect noncompliance with the Act, Division 1200-3 or any permit issued pursuant thereto and the Technical Secretary specifically authorizes an inspector to inspect a facility at any other time.

TAPCR 1200-3-9-.02(11)(e)3.(ii)

- A11. **Permit shield.**
- (a) Compliance with the conditions of this permit shall be deemed compliance with all applicable requirements as of the date of permit issuance, provided that:
 1. Such applicable requirements are included and are specifically identified in the permit; or
 2. The Technical Secretary, in acting on the permit application or revision, determines in writing that other requirements specifically identified are not applicable to the source, and the permit includes the determination or a concise summary thereof.
 - (b) Nothing in this permit shall alter or affect the following:

1. The provisions of section 303 of the Federal Act (emergency orders), including the authority of the Administrator under that section. Similarly, the provisions of T.C.A. §68-201-109 (emergency orders) including the authority of the Governor under the section;
 2. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;
 3. The applicable requirements of the acid rain program, consistent with section 408(a) of the Federal Act; or
 4. The ability of EPA to obtain information from a source pursuant to section 114 of the Federal Act.
- (c) Permit shield is granted to the permittee.

A12. Permit renewal and expiration.

- (a) Permit expiration terminates the source's right to operate unless a timely and complete renewal application has been submitted at least 180 days, but no more than 270 days prior to the expiration of this permit.
- (b) Provided that the permittee submits a timely and complete application for permit renewal the source will not be considered in violation of paragraph 1200-3-9-.02(11) until the Technical Secretary takes final action on the permit application, except as otherwise noted in paragraph 1200-3-9-.02(11).
- (c) This permit, its shield provided in Condition A11, and its conditions will be extended and effective after its expiration date provided that the source has submitted a timely, complete renewal application to the Technical Secretary.

TAPCR 1200-3-9-.02(11)(f)3 and 2, 1200-3-9-.02(11)(d)1(i)(III), and 1200-3-9-.02(11)(a)2

A13. Reopening for cause.

- (a) A permit shall be reopened and revised prior to the expiration of the permit under any of the circumstances listed below:
 1. Additional applicable requirements under the Federal Act become applicable to the sources contained in this permit provided the permit has a remaining term of 3 or more years. Such a reopening shall be completed not later than 18 months after promulgation of the applicable requirement. No such reopening is required if the effective date of the requirement is later than the permit expiration date of this permit, unless the original has been extended pursuant to 1200-3-9-.02(11)(a)2.
 2. Additional requirements become applicable to an affected source under the acid rain program.
 3. The Technical Secretary or EPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the permit.
 4. The Technical Secretary or EPA determines that the permit must be revised or revoked to assure compliance with the applicable requirements.
- (b) Proceedings to reopen and issue a permit shall follow the same proceedings as apply to initial permit issuance and shall affect only those parts of the permit for which cause to reopen exists, and not the entire permit. Such reopening shall be made as expeditiously as practicable.
- (c) Reopenings for cause shall not be initiated before a notice of such intent is provided to the permittee by the Technical Secretary at least 30 days in advance of the date that the permit is to be reopened except that the Technical Secretary may provide a shorter time period in the case of an emergency. An emergency shall be established by the criteria of T.C.A. 68-201-109 or other compelling reasons that public welfare is being adversely affected by the operation of a source that is in compliance with its permit requirements.
- (d) If the Administrator finds that cause exists to terminate, modify, or revoke and reissue a permit as identified in A13, he is required under federal rules to notify the Technical Secretary and the permittee of such findings in writing. Upon receipt of such

notification, the Technical Secretary shall investigate the matter in order to determine if he agrees or disagrees with the Administrator's findings. If he agrees with the Administrator's findings, the Technical Secretary shall conduct the reopening in the following manner:

1. The Technical Secretary shall, within 90 days after receipt of such notification, forward to EPA a proposed determination of termination, modification, or revocation and reissuance, as appropriate. If the Administrator grants additional time to secure permit applications or additional information from the permittee, the Technical Secretary shall have the additional time period added to the standard 90 day time period.
2. EPA will evaluate the Technical Secretary's proposed revisions and respond as to their evaluation.
3. If EPA agrees with the proposed revisions, the Technical Secretary shall proceed with the reopening in the same manner prescribed under Condition A13 (b) and Condition A13 (c).
4. If the Technical Secretary disagrees with either the findings or the Administrator that a permit should be reopened or an objection of the Administrator to a proposed revision to a permit submitted pursuant to Condition A13(d), he shall bring the matter to the Board at its next regularly scheduled meeting for instructions as to how he

should proceed. The permittee shall be required to file a written brief expressing their position relative to the Administrator's objection and have a responsible official present at the meeting to answer questions for the Board. If

the Board agrees that EPA is wrong in their demand for a permit revision, they shall instruct the Technical Secretary to conform to EPA's demand, but to issue the permit under protest preserving all rights available for litigation against EPA.

TAPCR 1200-3-9-.02(11)(f)6 and 7.

- A14. Permit transference.** An administrative permit amendment allows for a change of ownership or operational control of a source where the Technical Secretary determines that no other change in the permit is necessary, provided that the following requirements are met:

- (a) Transfer of ownership permit application is filed consistent with the provisions of 1200-3-9-.03(6), and
- (b) written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittee has been submitted to the Technical Secretary.

TAPCR 1200-3-9-.02(11)(f)4(i)(IV) and 1200-3-9-.03(6)

- A15. Air pollution alert.** When the Technical Secretary has declared that an air pollution alert, an air pollution warning, or an air pollution emergency exists, the permittee must follow the requirements for that episode level as outlined in TAPCR 1200-3-9-.03(1) and TAPCR 1200-3-15-.03.

- A16. Construction permit required.** Except as exempted in TAPCR 1200-3-9-.04 or excluded in the subparagraph TAPCR 1200-3-2-.01(aa) or subparagraph TAPCR 1200-3-2-.01(1)(cc), this facility shall not begin the construction of a new air contaminant source or the modification of an air contaminant source which may result in the discharge of air contaminants without first having applied for and received from the Technical Secretary a construction permit for the construction or modification of such air contaminant source.

TAPCR 1200-3-9-.01(1)(a)

- A17. Notification of changes.** The permittee shall notify the Technical Secretary 30 days prior to commencement of any of the following changes to an air contaminant source which would not be a modification requiring a construction permit.

- (a) change in air pollution control equipment
- (b) change in stack height or diameter
- (c) change in exit velocity of more than 25 percent or exit temperature of more than 15 percent based on absolute temperature.

TAPCR 1200-3-9-.02(7)

- A18. Schedule of compliance.** The permittee will comply with any applicable requirement that becomes effective during the permit term on a timely basis. If the permittee is not in compliance the permittee must submit a schedule for coming into compliance which must include a schedule of remedial measure(s), including an enforceable set of deadlines for specific actions.

TAPCR 1200-3-9-.02(11)(d)3 and 40 CFR Part 70.5(c)

- A19. Title VI.**

(a) The permittee shall comply with the standards for recycling and emissions reduction pursuant to 40 CFR, Part 82, Subpart F, except as provided for motor vehicle air conditioners (MVACs) in Subpart B:

1. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to Section 82.156.
2. Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to Section 82.158.
3. Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to Section 82.161.

(b) If the permittee performs a service on motor (fleet) vehicles when this service involves ozone depleting substance refrigerant in the motor vehicle air conditioner (MVAC), the permittee is subject to all the applicable requirements as specified in 40 CFR, Part 82, Subpart B, Servicing of Motor Vehicle Air Conditioners.

(c) The permittee shall be allowed to switch from any ozone-depleting substance to any alternative that is listed in the Significant New Alternatives Program (SNAP) promulgated pursuant to 40 CFR, Part 82, Subpart G, Significant New Alternatives Policy Program.

- A20. **112 (r).** The permittee shall comply with the requirement to submit to the Administrator or designated State Agency a risk management plan, including a registration that reflects all covered processes, by June 21, 1999, if the permittee's facility is required pursuant to 40 CFR, 68, to submit such a plan.

SECTION B

GENERAL CONDITIONS for MONITORING, REPORTING, and ENFORCEMENT

- B1. **Recordkeeping.** Monitoring and related record keeping shall be performed in accordance with the requirements specified in the permit conditions for each individual permit unit. In no case shall reports of any required monitoring and record keeping be submitted less frequently than at least every 6 months.
- (a) Where applicable, records of required monitoring information include the following:
1. The date, place as defined in the permit, and time of sampling or measurements;
 2. The date(s) analyses were performed;
 3. The company or entity that performed the analysis;
 4. The analytical techniques or methods used;
 5. The results of such analyses; and
 6. The operating conditions as existing at the time of sampling or measurement.
- (b) Digital data accumulation which utilizes valid data compression techniques shall be acceptable for compliance determination as long as such compression does not violate an applicable requirement and its use has been approved in advance by the Technical Secretary.
- TAPCR 1200-3-9-.02(11)(e)1(iii)
- B2. **Retention of monitoring data.** The permittee shall retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit.
- TAPCR 1200-3-9.02(11)(e)1(iii)(II)II
- B3. **Reporting.** Reports of any required monitoring and record keeping shall be submitted to the Technical Secretary in accordance with the frequencies specified in the permit conditions for each individual permit unit. Reporting periods will be dated from the end of the first complete calendar quarter following issuance of this permit unless otherwise noted. Reports shall be submitted within 60 days of the close of the reporting period unless otherwise noted. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by a responsible official. Reports required under "State only requirements" are not required to be certified by a responsible official.
- TAPCR 1200-3-9-.02(11)(e)1(iii)
- B4. **Certification.** Except for reports required under "State Only" requirements, any application form, report or compliance certification submitted pursuant to the requirements of this permit shall contain certification by a responsible official of truth, accuracy and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.
- TAPCR 1200-3-9-.02(11)(d)4
- B5. **Annual compliance certification.** The permittee shall submit annually compliance certifications with terms and conditions contained in Sections A, B, D and E of this permit, including emission limitations, standards, or work practices. This compliance certification shall include all of the following (provided that the identification of applicable information may cross-reference the permit or previous reports, as applicable):

- (a) The identification of each term or condition of the permit that is the basis of the certification;
- (b) The identification of the method(s) or other means used by the owner or operator for determining the compliance status with each term and condition during the certification period;
- (c) Whether such method(s) or other means provide continuous or intermittent data. Such methods and other means shall include, at a minimum, the methods and means required by this permit. If necessary, the owner or operator also shall identify any other material information that must be included in the certification to comply with section 113(c)(2) of the Federal Act, which prohibits knowingly making a false certification or omitting material information;
- (d) The status of compliance with the terms and conditions of the permit for the period covered by the certification, including whether compliance during the period was continuous or intermittent. The certification shall be based on the method or means designated in B5(b) above. The certification shall identify each deviation and take it into account in the compliance certification. The certification shall also identify as possible exceptions to compliance any periods during which compliance is required and in which an excursion* or exceedance** as defined below occurred; and
- (e) Such other facts as the Technical Secretary may require to determine the compliance status of the source.

* "Excursion" shall mean a departure from an indicator range established for monitoring under this paragraph, consistent with any averaging period specified for averaging the results of the monitoring.

** "Exceedance" shall mean a condition that is detected by monitoring that provides data in terms of an emission limitation or standard and that indicates that emissions (or opacity) are greater than the applicable emission limitation or standard (or less than the applicable standard in the case of a percent reduction requirement) consistent with any averaging period specified for averaging the results of the monitoring.

40 CFR Part 70.6(c)(5)(iii) as amended in the Federal Register Vol.62, No.204, October 22, 1997, pages 54946 and 54947

B6. Submission of compliance certification. The compliance certification shall be submitted to:

The Technical Secretary Division of Air Pollution Control ATTN: East Tennessee Permit Program 9th Floor, L & C Annex 401 Church Street Nashville, Tennessee 37243-1531	and	Air and EPCRA Enforcement Branch US EPA Region IV 61 Forsyth Street, SW Atlanta, Georgia 30303
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TAPCR 1200-3-9-.02(11)(e)3(v)(IV)

B7. Emergency provisions. An emergency constitutes an affirmative defense to an enforcement action brought against this source for noncompliance with a technology based emission limitation due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

(a) The affirmative defense of the emergency shall be demonstrated through properly signed, contemporaneous operating logs, or other relevant evidence that:

1. An emergency occurred and that the permittee can identify the probable cause(s) of the emergency. "Probable" must be supported by a credible investigation into the incident that seeks to identify the causes and results in an explanation supported by generally accepted engineering or scientific principles.

2. The permitted source was at the time being properly operated. In determining whether or not a source was being properly operated, the Technical Secretary shall examine the source's written standard operating procedures which were in effect at the time of the noncompliance and any other code as detailed below that would be relevant to preventing the noncompliance. Adherence to the source's standard operating procedures will be the test of adequate preventative maintenance, careless operation, improper operation or operator error to the extent that such adherence would prevent noncompliance. The source's failure to follow recognized standards of practice to the extent that adherence to such a standard would have prevented noncompliance will disqualify the source from any claim of an emergency and an affirmative defense.

3. During the period of the emergency, the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit.

4. The permittee submitted notice of the emergency to the Technical Secretary according to the notification criteria for malfunctions in rule 1200-3-20-.03. For the purposes of this condition, "emergency" shall be substituted

for "malfunction(s)" in rule 1200-3-20-.03 to determine the relevant notification threshold. The notice shall include a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.

(b) In any enforcement proceeding the permittee seeking to establish the occurrence of an emergency has the burden of proof.

(c) The provisions of this condition are in addition to any emergency, malfunction or upset requirement contained in Division 1200-3 or other applicable requirement.

TAPCR 1200-3-9-.02(11)(e)7

B8. Excess emissions reporting.

(a) The permittee shall promptly notify the Technical Secretary when any emission source, air pollution control equipment, or related facility breaks down in such a manner to cause the emission of air contaminants in excess of the applicable emission standards contained in Division 1200-3 or any permit issued thereto, or of sufficient duration to cause

damage to property or public health. The permittee must provide the Technical Secretary with a statement giving all pertinent facts, including the estimated duration of the breakdown. Violations of the visible emission standard which occur for less than 20 minutes in one day (midnight to midnight) need not be reported. Prompt notification will be within 24 hours of the malfunction and shall be provided by telephone to the Division's Nashville office. The Technical Secretary shall be notified

when the condition causing the failure or breakdown has been corrected. In attainment and unclassified areas if emissions other than from sources designated as significantly impacting on a nonattainment area in excess of the standards will not and do not occur over more than a 24-hour period (or will not recur over more than a 24-hour period) and no damage to property and or public health is anticipated, notification is not required.

(b) Any malfunction that creates an imminent hazard to health must be reported by telephone immediately to the Division's Nashville office and to the State Civil Defense.

(c) A log of all malfunctions, startups, and shutdowns resulting in emissions in excess of the standards in Division 1200-3 or any permit issued thereto must be kept at the plant. All information shall be entered in the log no later than twenty-four (24) hours after the startup or shutdown is complete, or the malfunction has ceased or has been corrected. Any later discovered corrections can be added in the log as footnotes with the reason given for the change. This log must record at least the following:

1. Stack or emission point involved
2. Time malfunction, startup, or shutdown began and/or when first noticed
3. Type of malfunction and/or reason for shutdown
4. Time startup or shutdown was complete or time the air contaminant source returned to normal operation
5. The company employee making entry on the log must sign, date, and indicate the time of each log entry

The information under items 1. and 2. must be entered into the log by the end of the shift during which the malfunction or startup began. For any source utilizing continuous emission(s) monitoring, continuous emission(s) monitoring collection satisfies the above log keeping requirement.

TAPCR 1200-3-20-.03 and .04

B9. Malfunctions, startups and shutdowns - reasonable measures required. The permittee must take all reasonable measures to keep emissions to a minimum during startups, shutdowns, and malfunctions. These measures may include installation and use of alternate control systems, changes in operating methods or procedures, cessation of operation until the process equipment and/or air pollution control equipment is repaired, maintaining sufficient spare parts, use of overtime labor, use of outside consultants and contractors, and other appropriate means. Failures that are caused by poor maintenance, careless operation or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions. This provision does not apply to standards found in 40 CFR, Parts 60(Standards of performance for new stationary sources), 61(National emission standards for hazardous air pollutants) and 63(National emission standards for hazardous air pollutants for source categories).

TAPCR 1200-3-20-.02

B10. Sources located in non-attainment areas or having significant impact on air quality in a non-attainment area. The owner or operator of all sources located in non-attainment areas or having a significant impact on air quality in a non-attainment

area (for the pollutant designated) must submit a report to the Technical Secretary within thirty (30) days after the end of each calendar quarter listing the times at which malfunctions, startups and/or shutdowns, which resulted in emissions greater than any applicable emission limits and the estimated amount of emissions discharged during such times. This report shall also include total emissions during the quarter and be reported in a format specified by the Technical Secretary.

TAPCR 1200-3-20-.04(2)

B11. Report required upon the issuance of a notice of violation for excess emissions. The permittee must submit within twenty (20) days after receipt of the notice of violation, the data shown below to assist the Technical Secretary in deciding whether to excuse or validate the violation. If this data has previously been available to the Technical Secretary prior to the issuance of the notice of violation no further action is required of the violating source. However, if the source desires to submit additional information, then this must be submitted within the same twenty (20) day time period. The minimum data requirements are:

- (a) The identity of the stack and/or other emission point where the excess emission(s) occurred;
- (b) The magnitude of the excess emissions expressed in pounds per hour and the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions;
- (c) The time and duration of the emissions;
- (d) The nature and cause of such emissions;
- (e) For malfunctions, the steps taken to correct the situation and the action taken or planned to prevent the recurrence of such malfunctions;
- (f) The steps taken to limit the excess emissions during the occurrence reported, and
- (g) If applicable, documentation that the air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good operating practices for minimizing emissions.

Failure to submit the required report within the twenty (20) day period specified shall preclude the admissibility of the data for consideration of excusal for malfunctions.

TAPCR 1200-3-20-.06(2),(3) and (4)

SECTION C

PERMIT CHANGES

C1. Operational flexibility changes. The source may make operational flexibility changes that are not addressed or prohibited by the permit without a permit revision subject to the following requirements:

- (a) The change cannot be subject to a requirement of Title IV of the Federal Act or Chapter 1200-3-30.
- (b) The change cannot be a modification under any provision of Title I of the federal Act or Division 1200-3.
- (c) Each change shall meet all applicable requirements and shall not violate any existing permit term or condition.
- (d) The source must provide contemporaneous written notice to the Technical Secretary and EPA of each such change, except for changes that are below the threshold of levels that are specified in Rule 1200-3-9-.04.
- (e) Each change shall be described in the notice including the date, any change in emissions, pollutants emitted, and any applicable requirements that would apply as a result of the change.
- (f) The change shall not qualify for a permit shield under the provisions of part 1200-3-9-.02(11)(e)6.
- (g) The permittee shall keep a record describing the changes made at the source that result in emissions of a regulated air pollutant subject to an applicable requirement, but not otherwise regulated under the permit, and the emissions resulting from those changes. The records shall be retained until the changes are incorporated into subsequently issued permits.

TAPCR 1200-3-9-.02(11)(a)4 (ii)

C2. Section 502(b)(10) changes.

- (a) The permittee can make certain changes without requiring a permit revision, if the changes are not modifications under Title I of the Federal Act or Division 1200-3 and the changes do not exceed the emissions allowable under the permit. The permittee must, however, provide the Administrator and Technical Secretary with written notification within a minimum of 7 days in advance of the proposed changes. The Technical Secretary may waive the 7 day advance notice in instances where the source demonstrates in writing that an emergency necessitates the change. Emergency shall be demonstrated by the criteria of TAPCR

1200-3-9-.02(11)(e)7 and in no way shall it include changes solely to take advantages of an unforeseen business opportunity. The Technical Secretary and EPA shall attach each such notice to their copy of the relevant permit.

- (b) The written notification must be signed by a facility Title V responsible official and include the following:
1. brief description of the change within the permitted facility;
 2. specifies the date on which the change will occur;
 3. declares and quantifies where possible any change in emissions;
 4. declares any permit term or condition that is no longer applicable as a result of the change; and
 5. declares the requested change is not a Title I modification and will not exceed allowable emissions under the permit.

- (c) The permit shield provisions of TAPCR 1200-3-9-.02(11)(e)6 shall not apply to Section 502(b)(10) changes.

TAPCR 1200-3-9-.02(11)(a)4 (i)

C3. Administrative amendment.

(a) Administrative permit amendments to this permit shall be in accordance with 1200-3-9-.02(11)(f)4. The source may implement the changes addressed in the request for an administrative amendment immediately upon submittal of the request.

(b) The permit shield shall be extended as part of an administrative permit amendment revision consistent with the provisions of TAPCR 1200-3-9-.02(11)(e)6 for such revisions made pursuant to item (c) of this condition which meet the relevant requirements of TAPCR 1200-3-9-.02(11)(e), TAPCR 1200-3-9-.02(11)(f) and TAPCR 1200-3-9-.02(11)(g) for significant permit modifications.

(c) Proceedings to review and grant administrative permit amendments shall be limited to only those parts of the permit for which cause to amend exists, and not the entire permit.

TAPCR 1200-3-9-.02(11)(f)4

C4. Minor permit modifications.

(a) The permittee may submit an application for a minor permit modification in accordance with TAPCR 1200-3-9-.02(11)(f)5(ii).

(b) The permittee may make the change proposed in its minor permit modification immediately after an application is filed with the Technical Secretary.

(c) Proceedings to review and modify permits shall be limited to only those parts of the permit for which cause to modify exists, and not the entire permit.

(d) Minor permit modifications do not qualify for a permit shield.

TAPCR 1200-3-9-.02(11)(f)5(ii)

C5. Significant permit modifications.

(a) The permittee may submit an application for a significant modification in accordance with TAPCR 1200-3-9-.02(11)(f)5(iv).

(b) Proceedings to review and modify permits shall be limited to only those parts of the permit for which cause to modify exists, and not the entire permit.

TAPCR 1200-3-9-.02(11)(f)5(iv)

C6. New construction or modifications.

Future construction at this source that is subject to the provisions of TAPCR 1200-3-9-.01 shall be governed by the following:

(a) The permittee shall designate in their construction permit application the route that they desire to follow for the purposes of incorporating the newly constructed or modified sources into their existing operating permit. The Technical Secretary shall use that information to prepare the operating permit application submittal deadlines in their construction permit.

(b) Sources desiring the permit shield shall choose the administrative amendment route of TAPCR 1200-3-9-.02(11)(f)4 or the significant modification route of TAPCR 1200-3-9-.02(11)(f)5(iv).

(c) Sources desiring expediency instead of the permit shield shall choose the minor permit modification procedure route of TAPCR 1200-3-9-.02(11)(f)5(ii) or group processing of minor modifications under the provisions of TAPCR 1200-3-9-.02(11)(f)5(iii) as applicable to the magnitude of their construction.

TAPCR 1200-3-9-.02(11)(d) 1(i)(V)

SECTION D

GENERAL APPLICABLE REQUIREMENTS

- D1. **Visible emissions.** With the exception of air emission sources exempt from the requirements of TAPCR Chapter 1200-3-5 and air emission sources for which a different opacity standard is specifically provided elsewhere in this permit, the permittee shall not cause, suffer, allow or permit discharge of a visible emission from any air contaminant source with an opacity in excess of twenty (20) percent for an aggregate of more than five (5) minutes in any one (1) hour or more than twenty (20) minutes in any twenty-four (24) hour period; provided, however, that for fuel burning installations with fuel burning equipment of input capacity greater than 600 million btu per hour, the permittee shall not cause, suffer, allow, or permit discharge of a visible emission from any fuel burning installation with an opacity in excess of twenty (20) percent (6-minute average) except for one six minute period per one (1) hour of not more than forty (40) percent opacity. Sources constructed or modified after July 7, 1992 shall utilize 6-minute averaging.

Consistent with the requirements of TAPCR Chapter 1200-3-20, due allowance may be made for visible emissions in excess of that permitted under TAPCR 1200-3-5 which are necessary or unavoidable due to routine startup and shutdown conditions. The facility shall maintain a continuous, current log of all excess visible emissions showing the time at which such conditions began and ended and that such record shall be available to the Technical Secretary or his representative upon his request.

TAPCR 1200-3-5-.01(1), TAPCR 1200-3-5-.03(6) and TAPCR 1200-3-5-.02(1)

- D2. **General provisions and applicability for non-process gaseous emissions.** Any person constructing or otherwise establishing a non-portable air contaminant source emitting gaseous air contaminants after April 3, 1972, or relocating an air contaminant source more than 1.0 km from the previous position after November 6, 1988, shall install and utilize the best equipment and technology currently available for controlling such gaseous emissions.

TAPCR 1200-3-6-.03(2)

- D3. **Non-process emission standards.** The permittee shall not cause, suffer, allow, or permit particulate emissions from non-process sources in excess of the standards in TAPCR 1200-3-6.

- D4. **General provisions and applicability for process gaseous emissions.** Any person constructing or otherwise establishing an air contaminant source emitting gaseous air contaminants after April 3, 1972, or relocating an air contaminant source more than 1.0 km from the previous position after November 6, 1988, shall install and utilize equipment and technology which is deemed reasonable and proper by the Technical Secretary.

TAPCR 1200-3-7-.07(2)

- D5. **Particulate emissions from process emission sources.** The permittee shall not cause, suffer, allow, or permit particulate emissions from process sources in excess of the standards in TAPCR 1200-3-7.

- D6. **Sulfur dioxide emission standards.** The permittee shall not cause, suffer, allow, or permit Sulfur dioxide emissions from process and non-process sources in excess of the standards in TAPCR 1200-3-14. Regardless of the specific emission standard, new process sources shall utilize the best available control technology as deemed appropriate by the Technical Secretary of the Tennessee Air Pollution Control Board.

- D7. **Fugitive Dust.**

(a) The permittee shall not cause, suffer, allow, or permit any materials to be handled, transported, or stored; or a building, its appurtenances, or a road to be used, constructed, altered, repaired, or demolished without taking reasonable precautions to

prevent particulate matter from becoming airborne. Such reasonable precautions shall include, but not be limited to, the following:

1. Use, where possible, of water or chemicals for control of dust in demolition of existing buildings or structures, construction operations, grading of roads, or the clearing of land;
 2. Application of asphalt, oil, water, or suitable chemicals on dirt roads, material stock piles, and other surfaces which can create airborne dusts;
 3. Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials. Adequate containment methods shall be employed during sandblasting or other similar operations.
- (b) The permittee shall not cause, suffer, allow, or permit fugitive dust to be emitted in such manner to exceed five (5) minutes per hour or twenty (20) minutes per day as to produce a visible emission beyond the property line of the property on which the emission originates, excluding malfunction of equipment as provided in Chapter 1200-3-20.

TAPCR 1200-3-8

- D8. Open burning.** The permittee shall comply with the TAPCR 1200-3-4-.04 for all open burning activities at the facility.

TAPCR 1200-3-4

- D9. Asbestos.** Where applicable, the permittee shall comply with the requirements of 1200-3-11-.02(d) when conducting any renovation or demolition activities at the facility.

TAPCR 1200-3-11-.02(d) and 40 CFR, Part 61

- D10. Annual certification of compliance.** The generally applicable requirements set forth in Section D of this permit are intended to apply to activities and sources that are not subject to source-specific applicable requirements contained in State of Tennessee and U.S. EPA regulations. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related record keeping and reporting requirements of TAPCR 1200-3-9-.02(11)(e)1.(iii) and 1200-3-10-.04(2)(b)1 and compliance requirements of TAPCR 1200-3-9-.02(11)(e)3.(i). The permittee shall submit compliance certification for these conditions annually.

SECTION E

SOURCE SPECIFIC EMISSION STANDARDS, OPERATING LIMITATIONS, and MONITORING, RECORDKEEPING and REPORTING REQUIREMENTS

37-0028

Facility Description:

Holston Army Ammunition Plant (HSAAP) is a Federal Government owned, contractor operated, facility that primarily manufactures RDX and HMX explosives for national defense purposes. The Area A operations in Sullivan County (82-0018) produce acetic anhydride and concentrated acetic acid for use in explosives production at the HSAAP Area B located in Hawkins County (37-0028). The Area B explosives manufacturing operations are supported by a steam generating operation at a powerhouse equipped with coal fired and natural gas fired boilers.

Conditions E1 through E3 apply to all sources in Section E of this permit unless otherwise noted.

E1. Fee payment: allowable emissions basis.

Note: for fees facility source nos. 37-0028 (Area B) and 82-0018 (Area A) are combined.

FEE EMISSIONS SUMMARY TABLE FOR MAJOR SOURCES 37-0028 and 82-0018

REGULATED POLLUTANTS	ALLOWABLE EMISSIONS (tons per AAP)	ACTUAL EMISSIONS (tons per AAP)	COMMENTS
PARTICULATE MATTER (PM)	1086	N/A	Includes all fee emissions.
PM ₁₀	N/A	N/A	
SO ₂	29,141	N/A	Includes all fee emissions
VOC	1191	N/A	Includes all fee emissions.
NO _x	7780	N/A	Includes all fee emissions.
CATEGORY OF MISCELLANEOUS HAZARDOUS AIR POLLUTANTS (HAP WITHOUT A STANDARD)*			
VOC FAMILY GROUP	N/A	N/A	
NON-VOC GASEOUS GROUP	N/A	N/A	
PM FAMILY GROUP	N/A	N/A	
CATEGORY OF SPECIFIC HAZARDOUS AIR POLLUTANTS (HAP WITH A STANDARD)**			
VOC FAMILY GROUP	N/A	N/A	
NON-VOC GASEOUS GROUP	N/A	N/A	
PM FAMILY GROUP	N/A	N/A	
CATEGORY OF NSPS POLLUTANTS NOT LISTED ABOVE***			
EACH NSPS POLLUTANT NOT LISTED ABOVE	N/A	N/A	

NOTES

AAP The Annual Accounting Period (AAP) is a twelve (12) consecutive month period that begins each July 1st and ends June 30th of the following year. The present Annual Accounting Period began July 1, 2008 and ends June 30, 2009. The next Annual Accounting Period begins July 1, 2009 and ends June 30, 2010.

N/A N/A indicates that no emissions are specified for fee computation.

AEAR AEAR indicates that an Actual Emissions Analysis is Required to determine the actual emissions of:
 (1) each regulated pollutant (Particulate matter, SO₂, VOC, NO_x, and so forth. See TAPCR 1200-3-26-.02(2)(i) for the definition of a regulated pollutant.),
 (2) each pollutant group (VOC Family, Non-VOC Gaseous, and Particulate Family), and

- (3) the Miscellaneous HAP Category under consideration during the **Annual Accounting Period**.
- * **Category Of Miscellaneous HAP (HAP Without A Standard):** This category is made-up of hazardous air pollutants that do not have a federal or state standard. Each HAP is classified into one of three groups, the **VOC Family group**, the **Non-VOC Gaseous group**, or the **Particulate (PM) Family group**. For fee computation, the **Miscellaneous HAP Category** is subject to the 4,000 ton cap provisions of subparagraph 1200-3-26-.02(2)(i).
- ** **Category Of Specific HAP (HAP With A Standard):** This category is made-up of hazardous air pollutants (HAP) that are subject to Federally promulgated Hazardous Air Pollutant Standards that can be imposed under Chapter 1200-3-11 or Chapter 1200-3-31. Each individual hazardous air pollutant is classified into one of three groups, the **VOC Family group**, the **Non-VOC Gaseous group**, or the **Particulate (PM) Family group**. For fee computation, each individual hazardous air pollutant of the **Specific HAP Category** is subject to the 4,000 ton cap provisions of subparagraph 1200-3-26-.02(2)(i).
- *** **Category Of NSPS Pollutants Not Listed Above:** This category is made-up of each New Source Performance Standard (NSPS) pollutant whose emissions are not included in the PM, SO₂, VOC or NO_x emissions from each source in this permit. For fee computation, each NSPS pollutant not listed above is subject to the 4,000 ton cap provisions of subparagraph 1200-3-26-.02(2)(i).

END NOTES

The permittee shall: Pay major source annual allowable based emission fees, as requested by the responsible official, in accordance with the above **Fee Emissions Summary Table** for the **current** annual accounting period that began July 1, **2008**.

The Tennessee Air Pollution Control Division will bill the permittee no later than April 1 prior to the end of each **annual accounting period**. The annual emission fee is due July 1 following the end of each **annual accounting period**. If any part of any fee imposed under TAPCR 1200-3-26-.02 is not paid within fifteen (15) days of the due date, penalties shall at once accrue as specified in TAPCR 1200-3-26-.02(8). Emissions for regulated pollutants shall not be double counted as specified in Condition A8(d) of this permit.

Payment of the fee due shall be submitted to The Technical Secretary at the address in Condition E2(b) of this permit.

TAPCR 1200-3-26-.02 (3) and (9), and 1200-3-9-.02(11)(e)1 (vii)

E2. Reporting requirements.

(a) **Semiannual reports.** The first report since issuance of this permit **renewal** shall cover the 6-month period from **January 1, 2009, to June 30, 2009**, and shall be submitted within 60 days (**due date August 29, 2009**) after the 6 month period ending **June 30, 2009**. Subsequent reports shall be submitted within 60 days after the end of each 6-month period following the first report.

Semiannual reports of this facility (37-0028) shall include:

- (1) Any monitoring and recordkeeping required by Conditions E4-1, E4-2, E4-9, E4-12, E4-13, E4-14, E4-15, E4-16, E4-17, E4-18, E4-19, E4-20, E4-21, E4-22, E4-23, E5-1, E5-4, E6-1, E6-2, E11-1, E16-1, E16-2, E18-1, E19-1, E21-2, E21-3, E21-4, E24-1, E24-2, E24-3, E26-1, E26-2, E26-4, E34-1, E35-1, E37-1, E40-1, E45-1, E47-2, E49-1, E50-1, E54-1, E55-3, E58-2, E58-3, and E59-2 of this permit. However, a summary report of this data is acceptable provided there is sufficient information to enable the Technical Secretary to evaluate compliance.
- (2) The visible emission evaluation readings from Conditions E4-6, E4-10, E4-24, E6-3, E21-1, E23-1, E24-5, E27-1, E28-1, E29-1, E46-1, E47-3, E48-1, E54-2, E55-4, and E58-1 of this permit if required by the opacity matrix. However, a summary report of this data is acceptable provided there is sufficient information to enable the Technical Secretary to evaluate compliance.
- (3) Identification of all instances of deviations from **ALL PERMIT REQUIREMENTS**.

These reports must be certified by a responsible official consistent with condition B4 of this permit and shall be submitted to The Technical Secretary at the address in Condition E2(b) of this permit.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

- (b) **Annual compliance certification.** The permittee shall submit annually compliance certifications with terms and conditions contained in Sections A, B, D and E of this permit, including emission limitations, standards, or work practices. This compliance certification shall include all of the following (provided that the identification of applicable information may cross-reference the permit or previous reports, as applicable):
- (1) The identification of each term or condition of the permit that is the basis of the certification;
 - (2) The identification of the method(s) or other means used by the owner or operator for determining the compliance status with each term and condition during the certification period;
 - (3) Whether such method(s) or other means provide continuous or intermittent data. Such methods and other means shall include, at a minimum, the methods and means required by this permit. If necessary, the owner or operator also shall identify any other material information that must be included in the certification to comply with section 113(c)(2) of the Federal Act, which prohibits knowingly making a false certification or omitting material information;
 - (4) The status of compliance with the terms and conditions of the permit for the period covered by the certification, **including whether compliance during the period was continuous or intermittent.** The certification shall be based on the method or means designated in E2(b)2 above. The certification shall identify each deviation and take it into account in the compliance certification. The certification shall also identify as possible exceptions to compliance any periods during which compliance is required and in which an excursion* or exceedance** as defined below occurred; and
 - (5) Such other facts as the Technical Secretary may require to determine the compliance status of the source.

* "Excursion" shall mean a departure from an indicator range established for monitoring under this paragraph, consistent with any averaging period specified for averaging the results of the monitoring.

** "Exceedance" shall mean a condition that is detected by monitoring that provides data in terms of an emission limitation or standard and that indicates that emissions (or opacity) are greater than the applicable emission limitation or standard (or less than the applicable standard in the case of a percent reduction requirement) consistent with any averaging period specified for averaging the results of the monitoring.

The first certification since issuance of this permit renewal shall cover the 12-month period from **July 1, 2008, to June 30, 2009**, and shall be submitted within 60 days (**due date: August 29, 2009**) after the 12-month period ending **June 30, 2009**. Subsequent certifications shall be submitted within 60 days after the end of each 12-month period following the first certification. These certifications shall be submitted to:

These certifications shall be submitted to: **TN APCD** and **EPA**

The Technical Secretary
Division of Air Pollution Control
ATTN: East Tennessee Permit Program
9th Floor, L & C Annex
401 Church Street
Nashville, Tennessee 37243-1531

and

Air and EPCRA Enforcement Branch
US EPA Region IV
61 Forsyth Street, SW
Atlanta, Georgia 30303

40 CFR Part 70.6(c)(5)(iii) as amended in the Federal Register Vol.62, No.204, October 22, 1997, pages 54946 and 54947

In addition, the facility shall submit to the Technical Secretary by January 31 of each year the compliance certification required by TAPCR 1200-3-32-.03(3) (adherence to the submitted accidental release plan for facilities subject to Section 112(r) of the federal Clean Air Act).

E3-1 Emissions control equipment shall be operating when the sources are operating, except in accordance with TAPCR 1200-3-20 (see condition B8).

E3-2. Recordkeeping: Data Entry Requirements

- a) For monthly recordkeeping, all data, including the results of all calculations, must be entered into the log no later than thirty (30) days from the end of the month for which the data is required.
- b) For weekly recordkeeping, all data, including the results of all calculations, must be entered into the log no later than seven (7) days from the end of the week for which the data is required.
- c) For daily recordkeeping, all data, including the results of all calculations, must be entered into the log no later than seven (7) days from the end of the day for which the data is required.

The permittee shall retain this record at the source location for a period of not less than five (5) years and keep this record available for inspection by the Technical Secretary or his representative.

E3-3. Visible emissions reading for the following sources are not required for the reason outlined in the tables;

Sources not Requiring a Visible Emission Reading per the Opacity Matrix

Source Number	Source Description	Reason no Visible Opacity Readings are required according to the Division's Opacity Matrix.
37-0028-12	<u>RDX Nitration Process (PES B-D1-1)</u> Inputs: Nitric Acid/Ammonium Nitrate, Acetic Acid/Hexamine, Acetic Anhydride, Water, Dilution Liquor; (2) Scrubbers for Control	Allowable Emission < 10 TPY for each pollutant[JEO1]
37-0028-13	<u>RDX Nitration Process (PES B-D3-1)</u> Inputs: Nitric Acid/Ammonium Nitrate, Acetic Acid/Hexamine, Acetic Anhydride, Water, Dilution Liquor; (2) Scrubbers for Control	Allowable Emission < 10 TPY for each pollutant[JEO2]
37-0028-14	<u>HMX Nitration Process (PES B-D6-1)</u> Nitration, Aging, & Simmering Inputs: Nitric Acid/Ammonium Nitrate, Acetic Acid/Hexamine, Acetic Anhydride, Water, (2) Packed Column Scrubbers for Control	Allowable Emission < 10 TPY for each pollutant[JEO3]
37-0028-15	<u>RDX and HMX Nitration Process (PES B-D7-1)</u> Inputs: Nitric Acid/Ammonium Nitrate, Acetic Acid/Hexamine, Acetic Anhydride, Water, Dilution Liquor; Scrubber for Control	Allowable Emission < 10 TPY for each pollutant[JEO4]
37-0028-16	<u>Filtering and Washing of Crude RDX (PES B-E1-1)</u> Packed Scrubber Control	Allowable Emission for each pollutant > 10 TPY from Colorless Pollutants[JEO5]
37-0028-17	<u>Filtering and Washing of Crude RDX and HMX (PES B-E3-1)</u> Jet Venturi Fume Scrubber Control	Allowable Emission for each pollutant > 10 TPY from Colorless Pollutants[JEO6]
37-0028-18	<u>RDX Nitration Process (PES B-D2-1)</u> Inputs: Nitric Acid/Ammonium Nitrate, Acetic Acid/Hexamine, Acetic Anhydride, Water, Dilution Liquor, Acetic Acid/RDX Slurry; Scrubber Control	Allowable Emission for each pollutant > 10 TPY from Colorless Pollutants[JEO7]
37-0028-19	<u>RDX Nitration Process (PES B-D8-1)</u> Inputs: Nitric Acid/Ammonium Nitrate, Acetic Acid/Hexamine, Acetic Anhydride, Water, Dilution Liquor; Scrubber for Control	Allowable Emission for each pollutant > 10 TPY from Colorless Pollutants[JEO8]
37-0028-20	<u>RDX Nitration Process (PES B-D9-1)</u> Inputs: Nitric Acid/Ammonium Nitrate, Acetic Acid/Hexamine, Acetic Anhydride, Water, Dilution Liquor; Scrubber for Control	Allowable Emission < 10 TPY for each pollutant[JEO9]

37-0028-21	<u>RDX and HMX Continuous Nitration Process (PES B-D10-1)</u> Simmering and Aging Process, Inputs: Nitric Acid/Ammonium Nitrate, Acetic Acid Hexamine, Acetic Anhydride, Water, Dilution Liquor, Scrubber Control	Allowable Emission for each pollutant > 10 TPY from Colorless Pollutants[JEO10]
37-0028-22	<u>Recrystallization of RDX (PES B-G2-1)</u> (5) Solvent Recovery Condensers	Allowable Emission < 10 TPY for each pollutant[JEO11]
37-0028-23	<u>Recrystallization of RDX or HMX (PES B-G7-1)</u> Condenser Control; (4) Primary Condensers & Vent Condenser for Solvent Recovery PSD-LAER	Allowable Emission < 10 TPY for each pollutant[JEO12]
37-0028-24	<u>Recrystallization of RDX (PES B-G8-1)</u> Vapor Recovery on Condenser Vent A; Primary Condenser & Vent Condenser LAER-PSD	Allowable Emission < 10 TPY for each pollutant[JEO13]
37-0028-25	<u>Recrystallization of RDX (PES B-G9-1)</u> (4) Primary Condensers & Vent Condenser for Solvent Recovery by Distillation; Condenser Vent	Allowable Emission < 10 TPY for each pollutant[JEO14]
37-0028-28	<u>Filtering and Washing of HMX or RDX (PES B-E4-1)</u> Packed Bed Scrubber Control Acetic Acid Recovery	Allowable Emission for each pollutant > 10 TPY from Colorless Pollutants[JEO15]
37-0028-49	<u>Lime Storage and Handling with Baghouse Control (PES B-235-1)</u>	Allowable Emission < 10 TPY for each pollutant[JEO16]
37-0028-67	<u>Ammonium Nitrate/Nitric Acid Solution Manufacturing (PES B-330-1)</u> Ammonia and Nitric Acid Reaction; Scrubber Control	Allowable Emission < 10 TPY for each pollutant[JEO17]
37-0028-75	<u>Recrystallization of HMX (PES B-G5-1)</u> (5) Solvent Recovery Condensers	Allowable Emission < 10 TPY for each pollutant[JEO18]
37-0028-76	<u>Coating of HMX (PES B-G5-2)</u> HMX recrystallization in Methyl Ethyl Ketone, n-Octane, Ethyl Acetate, Butyl Acetate, Isobutyl Acetate, Butyl Alcohol, Ethyl Alcohol, or Isopropyl Alcohol; Solvent Recovery	Allowable Emission < 10 TPY for each pollutant[JEO19]
37-0028-78	<u>Filtration and Washing of HMX (PES B-E6-1)</u> Acetic Acid Recovery Jet Venturi Scrubber Control	Allowable Emission for each pollutant > 10 TPY from Colorless Pollutants[JEO20]
37-0028-79	<u>Recrystallization and Coating of RDX (PES B-G1-1)</u> (4) Primary Condensers and Vent Condenser for Solvent Recovery	Allowable Emission for each pollutant > 10 TPY from Colorless Pollutants[JEO21]
37-0028-80	<u>Recrystallization of RDX (PES B-G3-1)</u> Dissolution, Distillation, and Condensation Processes. 2 Primary Condensers and Vent Condenser for Solvent Recovery	Allowable Emission for each pollutant > 10 TPY from Colorless Pollutants[JEO22]
37-0028-81	<u>Coating of RDX (PES G-3-2)</u> RDX coating with lacquer / solvent mixture Primary Condenser and Vent Condenser for Solvent Recovery	Allowable Emission < 10 TPY for each pollutant[JEO23]
37-0028-82	<u>Coating of RDX (PES B-G3-3)</u> RDX Coating with lacquers containing Methyl Ethyl Ketone, and Distillation of Water Saturated with Cyclohexanone Condenser for Recovery of Solvent	Allowable Emission < 10 TPY for each pollutant[JEO24]
37-0028-83	<u>Recrystallization of RDX (PES B-G4-1)</u> (4) Primary Condensers and Vent Condenser for Solvent Recovery	Allowable Emission < 10 TPY for each pollutant[JEO25]
37-0028-84	<u>Recrystallization of RDX (PES B-G4-2)</u> (2) Condensers for Solvent Recovery	Allowable Emission < 10 TPY for each pollutant[JEO26]
37-0028-85	<u>Coating of RDX (PES B-G4-3)</u> RDX coating with various lacquers containing n-Octane and Distillation of Cyclohexanone Saturated Water Condenser for Solvent Recovery	Allowable Emission < 10 TPY for each pollutant[JEO27]
37-0028-86	<u>Recrystallization of HMX (PES B-G6-1)</u> (5) Condensers for Solvent Recovery	Allowable Emission < 10 TPY for each pollutant[JEO28]
37-0028-87	<u>HMX Recrystallization (PES B-G6-2)</u> Condenser for Solvent Recovery	Allowable Emission < 10 TPY for each pollutant[JEO29]

37-0028-88	<u>Coating of RDX or HMX (PES B-G6-3)</u> Condenser for Solvent Recovery	Allowable Emission < 10 TPY for each pollutant[JEO30]
37-0028-89	<u>Coating of RDX or HMX (PES B-G6-4)</u> Coating of HMX or RDX with Various Solvent-based Lacquers/ Nitroplasticizer Solvent Recovery Condenser	Allowable Emission < 10 TPY for each pollutant[JEO31]
37-0028-92	<u>Lacquer Preparation (PES B-150-1)</u> Solvent and Binder Mixing; Vents A, B, C, D	Allowable Emission for each pollutant > 10 TPY from Colorless Pollutants[JEO32]
37-1028-37	<u>Filtering and Washing of Crude RDX (PES B-E8-1)</u> Packed Scrubber Control	Allowable Emission for each pollutant > 10 TPY from Colorless Pollutants[JEO33]
37-1028-39	<u>Filtering and Washing of Crude RDX (PES B-E10-1)</u> (2) Packed Scrubbers for Control	Allowable Emission for each pollutant > 10 TPY from Colorless Pollutants[JEO34]
37-1028-90	<u>Coating of RDX or HMX (PES B-G5-3)</u> Solvent Recovery Condenser	Allowable Emission < 10 TPY for each pollutant[JEO35]
37-1028-98	<u>(4) Lacquer Pots for Lacquer Preparation (PES B-150-4)</u> Mixing of Solvent and Binder; Loading of Lacquer to Lacquer Wagons	Allowable Emission < 10 TPY for each pollutant[JEO36]
37-1029-05	<u>Recrystallization of RDX (PES B-G8-2)</u> Solvent Recovery Condensers LAER-PSD	Allowable Emission for each pollutant > 10 TPY from Colorless Pollutants[JEO37]
37-1029-06	<u>Coating of RDX (PES B-G8-3)</u> Process Inputs: RDX, Solvents, Vistanex, Adipate, Oil Solvent Recovery Condensers LAER-PSD	Allowable Emission < 10 TPY for each pollutant[JEO38]
37-1029-14	<u>Coating of RDX or HMX (PES B-G7-2)</u> Process Inputs: RDX/HMX, Solvents, and Lacquer Mixtures Solvent Recovery Condenser	Allowable Emission < 10 TPY for each pollutant[JEO39]
37-0028-77	<u>Filtration and Washing of Crude RDX/ HMX (PES E-5-1)</u> Acetic Acid Recovery Jet Venturi Scrubber Control	Allowable Emission < 10 TPY for each pollutant[JEO40]

37-0028-01-09 Source Description: **(6) Coal Fired Boilers (PES B-200B-1) and (3) Natural Gas Fired Boilers (PES B-222)**

Operating Scenario #1

Heat Input capacity rating (nominal): four (4) coal-fired units at 185 million Btu/hour each, with Electrostatic Precipitators and Cyclones for Emissions Control, two (2) coal-fired units at 271 million Btu/hour each with Electrostatic Precipitators, and three (3) gas fired units at 177 million Btu/hour each.

OR

Operating Scenario #2

Heat Input capacity rating (nominal): three (3) coal fired units at 191.4 million Btu/hour each, with Fabric Filter control device and Sorbent Injectors and one (1) coal-fired unit at 185 million Btu/hour with an Electrostatic Precipitator and Cyclone for an Emission Control device, two (2) coal-fired units at 271 million Btu/hour each with Electrostatic Precipitators, and three (3) gas fired units at 177 million Btu/hour each.

Total source maximum operated heat input capacity of 912 million Btu/hour.

E4-1. Sulfur dioxide (SO₂) emitted from this source shall not exceed 4.0 pounds per million Btu, one hour average.

TAPCR 1200-3-14-.02(1)(a)

Compliance Method: Compliance with the SO₂ emission limit will be assured by monitoring of the sulfur content of the coal and the no. 6 fuel oil to maintain a maximum coal sulfur content of 1.5 percent and a maximum no. 6 fuel oil sulfur content of 2.0 percent. The sulfur content of each coal shipment is analyzed by the vendor using ASTM-4239 Method C and the data is furnished to the permittee. A log of the coal sulfur content and a record of vendor certification of the no. 6 fuel oil sulfur

content must be maintained at the facility and kept available for inspection by the Technical Secretary or his representative. Compliance for the SO₂ emission rate is determined by reference to the following emission factors for bituminous coal and fuel oil combustion from AP-42:

<u>Pollutant</u>	<u>Emission Factor (pounds/ ton of coal)</u>
Sulfur dioxide	38S where S = weight % sulfur in coal
Data from AP-42 Fifth Edition, January 1995, Table 1.1-1 (enclosed as Attachment 2)	

<u>Pollutant</u>	<u>Emission Factor (pounds/ 1000 gallons #6 fuel oil)</u>
Sulfur dioxide	157S where S = weight % sulfur in coal
Data from AP-42, Table 1.3-1 (enclosed as Attachment 16)	

TAPCR 1200-3-9-.02(11)(e)1(iii)

- E4-2.** The owner or operator of this source with restricted operating capacity must maintain a daily log of operating capacities and keep it available for inspection by Division personnel on request. The owner /operator shall submit by letter on or before January 31 of each year the total operated capacity for the previous calendar year.

TAPCR 1200-3-19-.06

Compliance Method: In lieu of submitting the previous calendar year operated capacity by January 31 of each year, the permittee shall include information of the monitoring of total actual heat input to this fuel burning installation in the semiannual reports and annual compliance certifications of condition E2 of this permit.

TAPCR 1200-3-9-.02(11)(e)1(iii)

- E4-3.** By the provisions of Rule 1200-3-10-.02 of the Tennessee Air Pollution Control Regulations, the monitoring of opacity is required for existing coal fired steam generators having a rated capacity of more than 250 million Btu per hour. Therefore, the Technical Secretary is to be notified in writing at least ninety (90) days prior to the reactivation of Boilers #5 and #6 so that an acceptable opacity program may be developed for these boilers.

TAPCR 1200-3-10-.02(d)ii & iii

- E4-4.** Boilers #5 and #6 cannot be operated either individually or in any combination for more than 30 days without proof in the form of an acceptable stack test that these units do comply with the applicable particulate emission standard.

TAPCR 1200-3-19-.05, 40 CFR Part 63 Subpart DDDDD (once reissued), and NOx SIP call 1200-3-27-.06.

- E4-5.** Not more than four (4) boilers shall be operated simultaneously at this source. This limitation is established pursuant to Rule 1200-3-26-.02(9)(g)1. of the Tennessee Air Pollution Control Regulations and the information contained in the permit application of October 16, 1996. The Technical secretary may require proof of compliance with this restriction.

- E4-6.** No person shall cause, suffer, allow or permit discharge of visible emissions from any fugitive dust source with an opacity in excess of ten (10) percent for an aggregate of fifteen (15) minutes. Readings are to be taken across the narrower direction if the generation site is rectangular or oblong and are to be perpendicular to the wind direction ($\pm 30^\circ$). Readings will be taken approximately every 15 seconds for any consecutive fifteen minute period and an arithmetic average used to determine compliance. Any other items not covered here will be in accordance with the general specifications of the reference method as specified in Part 1200-3-16-.01(5)(g)9.

TAPCR 1200-3-8-.02 and 1200-3-19-.05(2)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for VEE Method 2 enclosed as Attachment 1.

TAPCR 1200-3-9-.02(11)(e)1(iii)

E4-7. The permittee is placed on notice that the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial and Institutional Boilers and Process Heaters (40 CFR 63 Subpart DDDDD or the Boiler MACT) was promulgated by the US EPA and subsequently vacated and remanded to EPA by a federal court decision on June 8, 2007. Should the Boiler MACT (or a replacement for it) be reinstated, re-promulgated, or otherwise become effective during the permit term and any boilers or process heaters in the facility become subject to the rule, then this permit will be re-opened or revised as required to incorporate all new applicable requirements in this condition. The Division may utilize the minor permit modification and/or re-opening for cause to install the relevant standard conditions and compliance options unless the facility wishes to utilize compliance options not explicitly stated in the standard. In this case, the facility will apply for a significant modification or follow appropriate procedures per EPA guidance to install the desired conditions and compliance options in the permit. Some compliance options such as emissions averaging may preclude minor modification. In addition, the permittee is placed on notice that the operation of this source may be subject to the requirements of section 112(j) of the federal Clean Air Act, if applicable.

The regulatory provisions for hollow permits for MACT are specified under 1200-3-31-.04(1)(a) and (b) of TAPCR. The intent of the APC Board for case by case determinations for HAPS control requirements is specified under 1200-3-31-.03(1) of TAPCR. Under this provision the following is pertinent:

“ the Technical Secretary shall recognize any federal law, federal regulation or lawfully promulgated policy of the US EPA pertaining to case by case determinations of a hazardous air pollutant requirements as the minimum acceptable criteria prior to the setting of a case by case hazardous air pollutant requirement under the provision of this rule.”

Operating Scenario #2 contains conditions designed to demonstrate compliance with the Boiler MACT and if implemented by the State the applicable requirements of 112 (j).

OPERATING SCENARIO #1

Conditions E4-8 through E4-10 apply to sources 37-0028-01-04

E4-8. Operating scenario # 1 shall be used while the fuel burning installation consisting of four (4) Babcock & Wilcox Company spreader stoker type boilers operate with electrostatic precipitators (ESPs) as the control devices. The normal fuel is coal. In addition, limited amounts (less than 5 percent of coal consumption) of coal tar, oily rags, non-hazardous solvents, and secure paper documents may be burned in the four (4) Babcock & Wilcox boilers. High efficiency cyclones and ESPs are used for particulate control on the six (6) coal-fired boilers.

E4-9. Particulate matter emitted from this source shall not exceed 0.1 pounds per million Btu.

TAPCR 1200-3-6-.02(1); 1200-3-19-.05

Compliance Method: The total power input to the ESPs will be monitored and recorded three (3) times per 12 hour shift (approximate four (4) hour intervals) and a 24-hour average of total power input to the ESPs will be determined from the six (6) readings for each boiler. The total power input shall be recorded in either electronic or manual format. Compliance with the particulate emission limit will be assured by maintaining a total power input of 15 KW or higher. Deviations from the 24-hour average of a minimum 15 KW total power input will be explained in the semiannual reports.

Note: The relationship between power input and particulate emissions was developed during stack testing conducted on boiler #2 during the weeks of July 20, 1998 and August 3, 1998.

TAPCR 1200-3-9-.02(11)(e)1(iii)

E4-10. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

OPERATING SCENARIO #2

Conditions E4-11 through E4-26 apply to sources 37-0028-01-04

E4-11. Upon completion of the construction of the Fabric Filter control device and installation of supporting equipment for Boilers 3, and 4 (sources 37-0028-02-04) operating scenario #2 shall be followed. A schedule for completion is listed on page 2-29 of the Significant Modification Application revision 2 dated August 13, 2008. This scenario includes requirements for the fuel burning installation consisting of four (4) Babcock & Wilcox Company spreader stoker type boilers (Three (3) at a nominal capacity of 191.4 mmBtu/hr with Fabric Filter control devices with Sorbent Injectors (sources 37-0028-02-04) and one (1) with a nominal capacity of 185 million Btu/hour with Electrostatic Precipitator and a high efficiency cyclone for Emissions Control (source 37-0028-01). Each of the 191.4 million Btu/hour boilers (sources 37-0028-02-04) have two 40 million Btu/hour natural gas burners). Each boiler with natural gas burners is limited to a 191.4 million Btu/hour either burning coal or coal and natural gas combined. The normal fuels for sources 37-0028-02-04 are coal and natural gas and coal for source 37-0028-01. In addition, limited amounts (less than 5 percent of coal consumption) of oily rags, clean wood, and secure paper documents may be burned in the four (4) Babcock & Wilcox boilers.

Conditions E4-17, E4-21, E4-22, E4-24, and E4-25 contain requirements that were applicable requirements from the vacated 40 CFR 63 Subpart DDDDD Boiler MACT and can be used to demonstrate compliance with case-by-case Boiler MACT requirements (112 (j)) if required.

E4-12. The maximum heat input for each stoker coal fired boilers 2, 3, and 4 (sources 37-0028-02-04) shall not exceed 191.4 million BTU per hour and the maximum heat input for stoker coal fired boiler 1 (source 37-0028-01) shall not exceed 185 million BTUs per hour.

Compliance Method: Compliance with this limit is demonstrated by the information maintained in the records required by Condition E4-23.

E4-13. The maximum heat input for each of the natural gas fired burners shall not exceed 40.00 million BTU per hour.

Compliance Method: Compliance with this limit is demonstrated by the information maintained in the records required by Condition E4-23.

E4-14. Only coal and natural gas shall be used as fuels for this source.

Compliance Method: Compliance with this limit is demonstrated by the information maintained in the records required by Condition E4-23.

E4-15. The maximum amount of coal usage shall not exceed 60,716 tons per boiler during any period of twelve (12) consecutive months. The sulfur content of the coal shall not exceed 1.5% by weight.

Compliance Method: Compliance with this limit is demonstrated by the information maintained in the records required by Condition E4-23.

E4-16. The maximum amount of natural gas usage shall not exceed 687 million cubic feet per boiler during any period of twelve (12) consecutive months.

Compliance Method: Compliance with this limit is demonstrated by the information maintained in the records required by Condition E4-23.

E4-17. Particulate Matter (TSP) emitted from each boiler shall not exceed 0.07 pounds per MMBTU of heat input and 13.4 pounds per hour. These restrictions are based on the Title V Permit Significant Modification application dated October 11, 2006, revision 1

dated October 19, 2006, revision 2 dated August 13, 2008, and Title V Permit Renewal Revision dated December 15, 2008 and TAPCR 1200-3-6-.03(2).

Compliance Method: Compliance assurance for the particulate emission standard of this source is based upon compliance with the maximum heat input limit specified in condition E4-12 and the requirements of conditions E4-24 and E4-25 of this permit.

The control device will be operated and maintained in accordance with manufacturer specifications or best management practices. Routine inspections shall be performed on all control devices. Appropriate maintenance records including inspections, and dates on which maintenance is performed shall be recorded in a suitable permanent form and kept available for inspection.

- E4-18.** Nitrogen Oxides (NO_x) emitted from each boiler shall not exceed 0.4 pounds per MMBTU of heat input and 76.6 pounds per hour. This restriction is based on the Title V Permit Significant Modification application dated October 11, 2006, revision 1 dated October 19, 2006, revision 2 dated August 13, 2008, and Title V Permit Renewal Revision dated December 15, 2008 and calculations using the maximum amount of annual coal combustion and AP-42 emissions factors.
TAPCR 1200-3-6-.03(2)

Compliance Method: Compliance assurance for the nitrogen oxides emission standard for this source is based upon compliance with condition E4-12 of this permit and AP-42, Chapter 1, Section 1, emission factors.

- E4-19.** Carbon monoxide (CO) emitted from each boiler shall not exceed 34.7 pounds per hour.

This restriction is based on the Title V Permit Significant Modification application dated October 11, 2006, revision 1 dated October 19, 2006, revision 2 dated August 13, 2008, and Title V Permit Renewal Revision dated December 15, 2008 and calculations using the maximum amount of annual coal combustion and AP-42 emissions factors.

TAPCR 1200-3-6-.03(2)

Compliance Method: Compliance assurance for the carbon monoxide emission standard for this source is based upon compliance with condition E4-12 of this permit and AP-42, Chapter 1, Section 1, emission factors.

- E4-20.** Volatile Organic Compounds (VOC) emitted from each boiler shall not exceed 1.5 pounds per hour. This restriction is based on the Title V Permit Significant Modification application dated October 11, 2006, revision 1 dated October 19, 2006, revision 2 dated August 13, 2008, and Title V Permit Renewal Revision dated December 15, 2008 and calculations using the maximum amount of annual coal combustion and AP-42 emissions factors.

TAPCR 1200-3-6-.03(2)

Compliance Method: Compliance assurance for the VOC emission standard for this source is based upon compliance with condition E4-12 of this permit and AP-42, Chapter 1, Section 1, emission factors.

- E4-21.** Hydrogen chloride (HCl) emitted from each boiler shall not exceed 0.09 lb per MMBtu of heat input and 17.3 pounds per hour. These restrictions are based on the Title V Permit Significant Modification application dated October 11, 2006, revision 1 dated October 19, 2006, revision 2 dated August 13, 2008, and Title V Permit Renewal Revision dated December 15, 2008 and TAPCR 1200-3-6-.03(2).

Compliance Method: Compliance assurance for the HCl emission standard of this source is based upon compliance with the maximum heat input limit specified in condition E4-12 of this permit and through the following alternative compliance methods.

Alternative Compliance Method 1: Compliance with the applicable emission limit shall be demonstrated using fuel analysis monitoring based on a semiannual weighted average. The source must develop and submit a fuel analysis plan for review and approval according to the following procedures and requirements no later than 60 days before the date intended to demonstrate compliance.

1. Shall include the identification of all fuel types anticipated to be burned in each boiler or process heater.
2. For each applicable fuel type, the notification of whether you or the fuel supplier will be conducting the fuel analysis.
3. For each applicable fuel type a detailed description of the sample location and specific procedures to be used for collecting and preparing the composite samples. Samples shall be collected at a location and a frequency that most accurately represents the fuel type, where possible, at a point prior to mixing with other dissimilar fuel types.
4. For each applicable fuel type, the analytical methods, with the expected minimum detection levels.
5. If you request to use an alternative analytical method other than SW-846-9250 or ASTM-D6721-01 you must include a detailed description of the methods and procedures that will be used.
6. If you will be using fuel analysis from a fuel supplier in lieu of site specific sampling and analysis, the fuel supplier must use the analytical methods required by the approved fuel analysis plan.
7. A log of the Chlorine concentration in lb/MMBtu must be maintained at the facility and kept available for inspection by the Technical Secretary or his representative.

Alternative Compliance Method 2: If the results of the fuel analysis calculation are higher than the maximum hydrogen chloride emission limit compliance shall be demonstrated using performance testing. Within sixty (60) days of calculating that the fuel analysis monitoring based on a semiannual weighted average is greater than the emission limit the source shall develop and submit a site-specific performance monitoring and testing plan for hydrogen chloride for review and approval. Within 180 days of submittal of the performance monitoring and testing plan for hydrogen chloride you must conduct a performance test to demonstrate that the hydrogen chloride emissions do not exceed the emission limit.

Alternative Compliance Method 3: If the results of the performance test conducted in accordance with Alternative Method 2 and the associated site-specific performance monitoring and testing plan indicate that the maximum hydrogen chloride emissions are higher than the limit compliance shall be demonstrated using the calcium hydroxide sorbent injection system. Within sixty (60) days of submitting performance test data that indicates emissions are higher than the hydrogen chloride limit the source shall develop and submit a site-specific performance monitoring and testing plan for hydrogen chloride and for the use of the calcium hydroxide sorbent injection system for review and approval. Within 180 days of submittal of this plan the source must conduct a performance test to demonstrate that the hydrogen chloride emissions do not exceed the emissions limit and to determine the sorbent injection rate. The parameters and the averaging blocks for the sorbent injection rate will be determined as a part of the performance test for this alternative compliance method.

- E4-22.** Mercury emitted from each boiler shall not exceed 0.000009 lb per MMBtu of heat input and 0.0017 pounds per hour. These restrictions are based on the permit application dated October 11, 2006, revision 1 dated October 19, 2006, revision 2 dated August 13, 2008, and Title V Permit Renewal Revision dated December 15, 2008 and TAPCR 1200-3-6-.03(2).

Compliance Method: Compliance assurance for the Mercury emission standard of this source is based upon compliance with the maximum heat input limit specified in condition E4-12 of this permit and through the following alternative compliance methods.

Alternative Compliance Method 1: Compliance with the applicable emission limit shall be demonstrated using fuel analysis monitoring based on a semiannual weighted average. The source must develop and submit a fuel analysis plan for review and approval according to the following procedures and requirements no later than 60 days before the date intended to demonstrate compliance.

1. Shall include the identification of all fuel types anticipated to be burned in each boiler or process heater.
2. For each applicable fuel type, the notification of whether you or the fuel supplier will be conducting the fuel analysis.
3. For each applicable fuel type a detailed description of the sample location and specific procedures to be used for collecting and preparing the composite samples. Samples shall be collected at a location and a frequency that most accurately represents the fuel type, where possible, at a point prior to mixing with other dissimilar fuel types.
4. For each applicable fuel type, the analytical methods, with the expected minimum detection levels.

5. If you request to use an alternative analytical method other than ASTM-D6722-01 you must include a detailed description of the methods and procedures that will be used.
6. If you will be using fuel analysis from a fuel supplier in lieu of site specific sampling and analysis, the fuel supplier must use the analytical methods required by the approved fuel analysis plan.
7. A log of the mercury concentration in lb/MMBtu must be maintained at the facility and kept available for inspection by the Technical Secretary or his representative.

Alternative Compliance Method 2: If the results of the fuel analysis calculation are higher than the maximum mercury emission limit compliance shall be demonstrated using performance testing. Within sixty (60) days of calculating that the fuel analysis monitoring based on a semiannual weighted average is greater than the emission limit the source shall develop and submit a site-specific performance monitoring and testing plan for mercury for review and approval. Within 180 days of submittal of the performance monitoring and testing plan for hydrogen chloride you must conduct a performance test to demonstrate that the mercury emissions do not exceed the emission limit.

Alternative Compliance Method 3: If the results of the performance test conducted in accordance with Alternative Method 2 and the associated site-specific performance monitoring and testing plan indicate that the maximum mercury emissions are higher than the limit compliance shall be demonstrated using the bromine powder activated carbon sorbent injection system. Within sixty (60) days of submitting performance test data that indicates emissions are higher than the mercury limit the source shall develop and submit a site-specific performance monitoring and testing plan for mercury and for the use of the bromine powder activated carbon sorbent injection system for review and approval. Within 180 days of submittal of this plan the source must conduct a performance test to demonstrate that the mercury emissions do not exceed the emission limit and to determine the sorbent injection rate. The parameters and the averaging blocks for the sorbent injection rate will be determined as a part of the performance test for this alternative compliance method.

- E4-23.** The permittee shall maintain a record of the type of fuel used (coal, natural gas), fuel usage, and actual heat input at this source, in a form that readily shows compliance with Condition(s) E4-12, E4-13, E4-14, E4-15, and E4-16 must be maintained at the source location and kept available for inspection by the Technical Secretary or his representative in tables that contain the same information as that outlined in the following example tables. The actual heat input for these boilers shall be based upon a heat content of 13,812 BTU's per pound of coal and 1000 BTU's per cubic feet of natural gas. All data, including all required calculations, must be entered into the log no later than seven (7) days from the end of the day for which the data is required. All data, including all required calculations, must be entered into the log no later than thirty (30) days from the end of the month for which the data is required. The permittee shall retain this record at the source location for a period of not less than five (5) years and keep this record available for inspection by the Technical Secretary or his representative.

MONTHLY LOG: Source 37-028-02-04, Calculation of Heat Input for Boiler # ----.

Month:		Year:			
Date	Type of Fuel Used	Fuel Usage per Hour	Hours of Operation	Heat Input Rate per Hour*	MMBtu per hour, Daily Average
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
Total					

* Based on 13,812 BTU's per pound of coal or 1000 BTU's per cubic feet of natural gas.

YEARLY FUEL USAGE

MONTH/YEAR	Natural Gas Usage per Boiler (standard cubic feet (scf) per month)	Coal Usage per Boiler (tons per month)
TOTAL		

E4-24. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for one (1) six-minute period in any one (1) hour period and for no more than four (4) six-minute periods in any twenty-four (24) hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average). TAPCR 1200-3-5-.03(6), TAPCR 1200-3-5-.01(1), and TAPCR 1200-3-10-.02(10)(a).

Compliance Method: Compliance shall be demonstrated by installing, operating, and maintaining a continuous opacity monitor as stipulated in the approved performance monitoring plan submitted in accordance with condition E4-25.

Consistent with the requirements of Chapter 1200-3-20 and Rule 1200-3-5-.02, due allowance may be made for visible emissions in excess of that allowed in this permit which are necessary or unavoidable due to routine startup and shutdown conditions

Nothing in this permit is a waiver of or otherwise precludes the permittee from asserting any defense that is available to the permittee under Tennessee law. An exception shall be made for any periods where the source operated above any of the applicable maximum operating limits or below any of the applicable minimum operating limits if the source had a startup, shutdown, or malfunction and the source took actions consistent with an approved startup, shutdown, and malfunction plan. The startup, shutdown, and malfunction plan shall be submitted no later than sixty (60) days before the date intended to demonstrate compliance. It shall include a detailed description of the compliance reports to be submitted and actions to be taken.

- E4-25.** Within 60 days after achieving the maximum production rate at which the facility will be operated, but no later than 180 days after initial start-up, the owner or operator shall furnish the Technical Secretary a written report of the results of an emissions performance test for particulate matter. The performance test shall be conducted and data reduced in accordance with methods and procedures specified in the current 40 CFR 60, Appendix A. The source must develop and submit a site-specific performance monitoring and testing plan for particulate matter for review and approval no later than sixty (60) days before the date intended to demonstrate compliance.

37-0028-10	Source Description:	<u>Open Burning of Explosive Contaminated Materials</u>
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Conditions E5-1 through E5-8 apply to source 37-0028-10

- E5-1.** This source shall only operate (actively start fires) during the hours between 8:30 AM and 7:30 PM daily and shall not be operated in excess of 400 hours per year.

TAPCR 1200-3-4-.04(1)(h), 1200-3-4-.04(1)(k) & 1200-3-19-.05(2)

Compliance Method: Compliance with this condition shall be assured by the recordkeeping of condition E5-4.

TAPCR 1200-3-19-.06

- E5-2.** It is recognized that there are two categories of explosive contaminated materials open burning. The following procedures shall be adhered to in determining whether or not acceptable pollutant dispersion conditions are present:

(a) Daily open burning of trash container waste in the cage receptacle will not be permitted in the instance of an air stagnation advisory in East Tennessee. It will be the responsibility of the permittee to monitor the local National Oceanic and Atmospheric Administration's Weather Service Office bulletins to determine if acceptable pollutant dispersion conditions are present.

(b) Quarterly open burning of explosive contaminated materials not appropriate for burning in the cage receptacle shall be conducted only upon advance approval for each burn from the Division Air Pollution Control's Johnson City Environmental Field Office. Under no circumstances shall the permittee open burn during an air stagnation advisory in East Tennessee.

TAPCR 1200-3-4-.04(1)(h), 1200-3-4-.04(1)(k) & 1200-3-19-.05(2)

- E5-3.** Burning is limited to non-radioactive, explosive, shock sensitive, chemically unstable, or highly reactive wastes, packaging, or contaminated or potentially contaminated combustible materials. Priming materials used to facilitate such burning shall be limited to #1 or #2 grade fuel oils, and wood waste.

TAPCR 1200-3-4-.04(1)(h) & 1200-3-4-.04(1)(k)

- E5-4.** The owner or operator of this source with restricted operating hours must maintain a daily log of operating hours and keep it available for inspection by Division personnel. The owner or operator shall submit by letter on or before January 31 of each year the total hours of operation for the previous calendar year and the maximum daily operation for the calendar year.

TAPCR 1200-3-19-.06

Compliance Method: In lieu of submitting the previous calendar year operating hours by January 31 of each year, the permittee shall include information of the monitoring of operating hours at this source in the semiannual reports and annual compliance certifications of condition E2 of this permit.

TAPCR 1200-3-9-.02(11)(e)1(iii)

- E5-5.** This permit does not, and shall not be construed to authorize Holston Army Ammunition Plant to open burn explosive contaminated wastes which were shipped to Holston Army Ammunition Plant for the purpose of disposal, except when such burning must be conducted to safely dispose of this material.
- E5-6.** Open burning of barium chloride explosive contaminated materials is permitted subject to the following restriction: Explosives contaminated materials containing barium chloride to be open burned will be limited to 2 filter bags per batch with the concentration of barium chloride less than or equal to 0.01% of the bag's weight and 60 probe socks per batch with the concentration of barium chloride being less than or equal to 0.01% of the sock's weight. The Technical Secretary may require proof of compliance with this condition.

TAPCR 1200-3-19-.05

- E5-7.** Open burning of triamino-trinitro-benzene contaminated materials is permitted subject to the following restriction: Explosives contaminated materials containing triamino-trinitro-benzene to be open burned will be limited to 300 fiber drums and liners/month at present and 2100 fiber drums and liners/month in the event of mobilization with the triamino-trinitro-benzene contamination being limited to 0.01% by weight of the fiber drum and liner's weight. The Technical Secretary may require proof of compliance with this condition.

TAPCR 1200-3-19-.05

- E5-8.** This permit is valid only for the site approved. The burn site shall not be changed without an official approval from the Technical Secretary's representative at the Johnson City Environmental Field Office.

TAPCR 1200-3-19-.05

37-0028-11	Source Description:	<u>Refuse Incineration Units A & B (PES B-230-B)</u>
Combustall Incinerators; Propane Gas Fired; Overfire and Afterfire Burners		
Noncontaminated Refuse Incineration		
3.69 Million Btu/hr. Nominal Heat Input Capacity Each		

Conditions E6-1 through E6-3 apply to source 37-0028-11

- E6-1.** The owner or operator of this source with restricted annual emissions must maintain a log of operating capacities and keep it available for inspection by Division personnel on request. The owner or operator shall submit by letter on or before January 31 of each year the total operated capacity for the previous calendar year.

TAPCR 1200-3-19-.06

Compliance Method: In lieu of submitting the previous calendar year operated capacity by January 31 of each year, the permittee shall include information of the monitoring of total operated capacity for this source in the semiannual reports and annual compliance certifications of condition E2 of this permit.

TAPCR 1200-3-9-.02(11)(e)1(iii)

E6-2. Particulate matter emitted from this source shall not exceed 3.32 tons per year.

TAPCR 1200-3-19-.05(2) and 1200-3-6-.02(3)

Compliance Method: Compliance with this limit shall be determined by recordkeeping of a log of loads to the incinerators. Charge rate shall be determined by number of loads and an average weight of 266 pounds per load. Previous stack test data from source testing conducted May 23 & 24 and June 13 & 14, 1979 shall be used to determine particulate emission rates. From test data, the average particulate emission from Unit A was 2.59 pounds per hour and the average emission rate from Unit B was 3.44 pounds per hour. Average charge rate for the test runs was 1920 lb/hr.

TAPCR 1200-3-9-.02(11)(e)1(iii)

E6-3. No person shall cause, suffer, allow or permit discharge of visible emissions from any fugitive dust source with an opacity in excess of ten (10) percent for an aggregate of fifteen (15) minutes. Readings are to be taken across the narrower direction if the generation site is rectangular or oblong and are to be perpendicular to the wind direction ($\pm 30^\circ$). Readings will be taken approximately every 15 seconds for any consecutive fifteen minute period and an arithmetic average used to determine compliance. Any other items not covered here will be in accordance with the general specifications of the reference method as specified in Part 1200-3-16-.01(5)(g)9.

TAPCR 1200-3-8-.02 and 1200-3-19-.05(2)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix dated June 18, 1996 for TVEE Method 2 enclosed as Attachment 1.

TAPCR 1200-3-9-.02(11)(e)1(iii)

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1(iii)

37-0028-12 Source Description: <u>RDX Nitration Process (PES B-D1-1)</u> Inputs: Nitric Acid/Ammonium Nitrate, Acetic Acid/Hexamine, Acetic Anhydride, Water, Dilution Liquor; (2) Scrubbers for Control
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Condition E7-1 applies to source 37-0028-12

E7-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-13 Source Description: <u>RDX Nitration Process (PES B-D3-1)</u> Inputs: Nitric Acid/Ammonium Nitrate, Acetic Acid/Hexamine, Acetic Anhydride, Water, Dilution Liquor; (2) Scrubbers for Control
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Condition E8-1 applies to source 37-0028-13

- E8-1.** Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-14 Source Description: HMX Nitration Process (PES B-D6-1)

Nitration, Aging, & Simmering

Inputs: Nitric Acid/Ammonium Nitrate, Acetic Acid/Hexamine, Acetic Anhydride, Water, (2) Packed Column Scrubbers for Control

Condition E9-1 applies to source 37-0028-14

- E9-1.** Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-15 Source Description: RDX and HMX Nitration Process (PES B-D7-1)

Inputs: Nitric Acid/Ammonium Nitrate, Acetic Acid/Hexamine, Acetic Anhydride, Water, Dilution Liquor; Scrubber for Control

Condition E10-1 applies to source 37-0028-15

- E10-1.** Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-16 Source Description: Filtering and Washing of Crude RDX (PES B-E1-1)

Packed Scrubber Control

Conditions E11-1 through E11-2 apply to source 37-0028-16

E11-1 Volatile organic compounds emitted from this source shall not exceed 3.0 pounds per hour.

TAPCR 1200-3-7-.07(2)

Compliance Method: Compliance with this limit is assured by monitoring of batch production rate records and correlation with the maximum emissions rate at a maximum process capacity of 6,300 pounds per hour of RDX. From material balance analysis referenced on page C-1 of Chapter 50 of the October 16, 1996 permit application (enclosed as Attachment 3), the maximum emissions rate of VOC is 2.4 pounds per hour.

TAPCR 1200-3-9.02(11)(e)1(iii)

E11-2 Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-17 Source Description: Filtering and Washing of Crude RDX and HMX (PES B-E3-1)
Jet Venturi Fume Scrubber Control

Condition E12-1 applies to source 37-0028-17

E12-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-18 Source Description: RDX Nitration Process (PES B-D2-1)
Inputs: Nitric Acid/Ammonium Nitrate, Acetic Acid/Hexamine, Acetic Anhydride, Water, Dilution Liquor, Acetic Acid/RDX Slurry; Scrubber for Control

Condition E13-1 applies to source 37-0028-18

E13-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-19 Source Description: RDX Nitration Process (PES B-D8-1)

Inputs: Nitric Acid/Ammonium Nitrate, Acetic Acid/Hexamine, Acetic Anhydride, Water, Dilution Liquor; Scrubber for Control

Condition E14-1 applies to source 37-0028-19

E14-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-20 Source Description: RDX Nitration Process (PES B-D9-1)

Inputs: Nitric Acid/Ammonium Nitrate, Acetic Acid/Hexamine, Acetic Anhydride, Water, Dilution Liquor; Scrubber for Control

Condition E15-1 applies to source 37-0028-20

E15-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-21 Source Description: RDX and HMX Continuous Nitration Process (PES B-D10-1)

Simmering and Aging Processes

Inputs: Nitric Acid/Ammonium Nitrate, Acetic Acid/Hexamine, Acetic Anhydride, Water, Dilution Liquor; Scrubber for Control

Conditions E16-1 through E16-3 apply to source 37-0028-21.

E16-1. Volatile organic compounds emitted from either source shall not exceed 5.47 pounds per hour.

TAPCR 1200-3-7-.07(2)

Compliance Method: (a) A VOC collection efficiency of 80 percent is achieved with a scrubber solution acetic acid content of less than 15 percent. At reactivation of this source, the scrubber solution shall be analyzed once per shift and adjusted as needed to maintain an acetic acid content of less than 15 percent. A parametric relationship between scrubber solution overflow rate and acetic acid content/ scrubber efficiency shall be established. The scrubber solution overflow rate / make-up water flow rate shall be monitored continuously with the PLC system to allow adjustment of the overflow rate / make-up water flow rate ratio. Compliance with this monitoring procedure shall be included in the reports of condition E2.

(b) Production batch records shall be maintained and monitored to correlate production and the calculated maximum VOC emission rate of 1.33 pounds per hour (emission calculation from Chapter 49 application revision of September 8, 2000, page number 49-11, enclosed as Attachment 4), revised November 12, 2004. The results of this monitoring shall be included in the reports of condition E2.

TAPCR 1200-3-9-.02(11)(e)1(iii)

E16-2. Nitrogen oxides (NO_x) emitted from either source shall not exceed 1.9 pounds per hour.

TAPCR 1200-7-.07(2)

Compliance Method: A NO_x collection efficiency of 36 percent is achieved with a scrubber solution acetic acid content of less than 15 percent. At reactivation of this source, the scrubber solution shall be analyzed once per shift and adjusted as needed to maintain an acetic acid content of less than 15 percent. A parametric relationship between scrubber solution overflow rate and acetic acid content/ scrubber efficiency shall be established. The scrubber solution overflow rate / make-up water flow rate shall be monitored continuously with the PLC system to allow adjustment of the overflow rate / make-up water flow rate ratio. Compliance with this monitoring procedure shall be included in the reports of condition E2.

(b) Production batch records shall be maintained and monitored to correlate production and the calculated maximum NOX emission rate of 1.9 pounds per hour (emission calculation from Chapter 49 application revision of September 8, 2000, page number 49-11, enclosed as Attachment 4), revised November 12, 2004. The results of this monitoring shall be included in the reports of condition E2.

TAPCR 1200-3-9-.02(11)(e)1(iii)

E16-3. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1(iii)

37-0028-22	Source Description:	<u>Recrystallization of RDX (PES B-G2-1)</u>
(5) Solvent Recovery Condensers		

Condition E17-1 applies to source 37-0028-22
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E17-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-23 Source Description: Recrystallization of RDX or HMX (PES B-G7-1)
Condenser Control; (4) Primary Condensers & Vent Condenser for Solvent Recovery
PSD-LAER

Conditions E18-1 through E18-3 apply to source 37-0028-23

E18-1. a) Volatile organic compounds (VOC) emitted from this source shall not exceed 18.0 pounds per hour.

TAPCR 1200-3-18-.03(2) (regulations when limits were established) leading to 1200-3-9-.01(5)(b)2

b) Volatile organic compounds emitted from this source shall not exceed 9.9 tons per year.

TAPCR 1200-3-26-.02(9)(g)1. fee agreement per permittee's request in permit application revision dated April 16, 1999.

Compliance Method: For a) of this condition, compliance with this limit is determined by monitoring of batch records of production rates and solvent additions to storage tanks and dissolvers associated with this source and material balance calculations based upon this process monitoring. A monthly calculation shall be performed and recorded in a log as follows:

$$\text{VOC emission (lbs / hr)} = \text{monthly VOC emission (lbs)} / \text{monthly hours of production at this source (hr)}$$

For fee purposes for b) of this condition, the permittee shall submit calculations of VOC emissions (tons per year) for assurance of compliance along with the emissions analysis required by condition E1.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

E18-2. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

E18-3. If required by the Technical Secretary, total gaseous nonmethane organic compounds (NMOC) emissions from this source shall be determined by Method 25 outlined in the Federal Register, vol. 45, no. 194, October 3, 1990, beginning on page 65959.

37-0028-24 Source Description: Recrystallization of RDX (PES B-G8-1)
Vapor Recovery on Condenser Vent A; Primary Condenser & Vent Condenser LAER-PSD

Conditions E19-1 through E19-2 apply to source 37-0028-24

E19-1. Volatile organic compounds emitted from this source shall not exceed 0.5 pounds per hour.

TAPCR 1200-3-18-.03(2) (regulations when limits were established) leading to 1200-3-9-.01(5)(b)2

Compliance Method: This is a process emission source whose potential to emit is less than 5 tons per year of volatile organic compounds. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-3-9-.02(11)(e)1.(iii) and 1200-3-10-.04(2)(b)(1), and the compliance requirements of subpart 1200-3-9-.02(11)(e)3.(i). The permittee shall submit annually compliance certification for source 37-0028-24 (recrystallization of RDX).

TAPCR 1200-3-9-.04(5)(c)3

E19-2. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-25	Source Description:	<u>Recrystallization of RDX (PES B-G9-1)</u>
(4) Primary Condensers & Vent Condenser for Solvent Recovery by Distillation; Condenser Vent		

Condition E20-1 applies to source 37-0028-25
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E20-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-26	Source Description:	<u>Recrystallization and Coating of RDX (PES B-G10-1)</u>
(4) Primary Condensers and (2) Vent Condensers for Solvent Recovery; Condenser Vents (2)		

1: 2, 4 Dinitroanisole (DNAN) Chemical Manufacturing Operation (PES B-G-10-2)
Ten processing and storage Vessels and associated equipment; Condenser and Scrubber controls

2: 2, 3 Dimethyl 2, 3 Dinitrobutane (DMDNB) Chemical Manufacturing Operation (PES B-G-10-3)
Twenty Process and Storage vessels and associated equipment; Condenser and scrubber controls

3: Nitrotriazolone Manufacturing Operation (PES B-G-10-4)
Nine Process and Storage Vessels and Associated equipment; Condenser and Scrubber Controls

4: Triaminotrinitrobenzene (TATB) Manufacturing Operation (PES B-G-10-5)

Fifteen Process and Storage Vessels and Associated equipment; Condenser and Scrubber Controls

37-0028-27 Source Description: Recrystallization of RDX (PES B-G10A-1)

(4) Primary Condensers & Vent Condenser for Solvent Recovery by Distillation

37-1028-39 Source Description: Filtering and Washing of Crude RDX (PES B-E10-1)

(2) Packed Scrubbers for Control - Only includes process vessels/tanks (including corresponding emission allowances) utilized in conjunction with 37-0028-26 and -27

Conditions E21-1 through E21-5 apply to sources 37-0028-26, 37-0028-27, and portions of 37-1028-39

E21-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for one (1) six-minute period in any one (1) hour period and for no more than four (4) six-minute periods in any twenty-four (24) hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average). TAPCR 1200-3-5-.03(6) and TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures of the Division's opacity Matrix dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1(iii)

E21-2. Particulate matter emitted from this source shall not exceed 5.39 pounds per hour.

TAPCR 1200-3-7-.03(1)

Compliance Method: For RDX Recrystallization and Coating Operations, compliance with this limit shall be determined by recordkeeping of Batch production rates and correlated with the calculated maximum emissions rate of 0.02 pounds per hour per mix tank (enclosed as Attachment 5) at a maximum process capacity of 5,555 pounds per hour of RDX. For other operations, compliance with this limit shall be determined by recordkeeping of batch production rate and correlated with calculated maximum emissions for the respective operations as contained in the permit application (as applicable).

TAPCR 1200-3-9-.02(11)(e)1(iii)

E21-3. This source is permitted to operate as a flexible manufacturing facility for any of the processes listed in the source description or other insignificant emission activities and may include the utilization of portions of sources 37-0028-27 and 37-1028-39.

Compliance Method: Compliance with this condition shall be determined by recordkeeping of mode operation and the batch production rates and correlated with calculated maximum emissions rate as contained in the permit application.

E21-4. Nitrogen Oxides (NO_x) emitted from this source shall not exceed 15 tons per year.

TAPCR 1200-3-7-.07(2)

Compliance Method: NO_x emissions and scrubber efficiency for each respective manufacturing operation shall be determined by source testing and used to determine the per batch emission rate. Recordkeeping of the per batch emission rate multiplied by the number of batches manufactured shall be used to demonstrate the actual NO_x emission. Reports and certifications shall be submitted in accordance with Condition E2 of this permit.

E21-5. Portion of sources 37-0028-27 and 37-1028-39 including process vessels, tanks, and emission allowances may be utilized in conjunction with source 37-0028-26.

Compliance Method: Compliance with this condition shall be demonstrated by compliance with condition E21-3.

37-0028-28 Source Description: Filtering and Washing of HMX or RDX (PES B-E4-1)
Packed Bed Scrubber Control
Acetic Acid Recovery

Condition E22-1 applies to source 37-0028-28

E22-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-43 Source Description: Manufacturing of 61% Nitric Acid by Ammonia Oxidation Process (PES B-302B-7)
Ammonia, Air, & Water Process Inputs
Extended Absorption Column

Conditions E23-1 through E23-3 apply to source 37-0028-43

E23-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

E23-2. Nitrogen oxides (NO_x) emitted from this source shall not exceed 5.5 pounds per ton of nitric acid produced.

TAPCR 1200-3-7-.08(2)(a)1.

Compliance Method: Compliance with this limit is determined by the results of previous source stack testing conducted June 2, 1986. From test results, the maximum emission rate was 5.03 pounds NO_x per ton of 100% acid produced.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

E23-3. Nitrogen oxides (NO_x) emitted from this source shall not exceed 400 ppm.

TAPCR 1200-3-7-.08(2)(a)2.

Compliance Method: Compliance with this limit is determined by the results of previous source stack testing conducted June 2, 1986. From test results, the maximum NO_x emission concentration was 368 ppm.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-44	Source Description:	<u>Nitric Acid Concentration by Magnesium Nitrate Process (PES B-304-1)</u>
37-0028-45	Source Description:	<u>Nitric Acid Concentration by Magnesium Nitrate Process (PES B-304-2)</u>
37-0028-46	Source Description:	<u>Nitric Acid Concentration by Magnesium Nitrate Process (PES B-304-3)</u>
37-0028-47	Source Description:	<u>Nitric Acid Concentration by Magnesium Nitrate Process (PES B-304-4)</u>
37-0028-48	Source Description:	<u>Nitric Acid Concentration by Magnesium Nitrate Process (PES B-334-5)</u>
37-0028-63	Source Description:	<u>Nitric Acid Concentration by Magnesium Nitrate Process (PES B-334-6)</u>
37-0028-64	Source Description:	<u>Nitric Acid Concentration by Magnesium Nitrate Process (PES B-334-7)</u>
37-0028-65	Source Description:	<u>Nitric Acid Concentration by Magnesium Nitrate Process (PES B-334-8)</u>

Each source performs the following and contains the following equipment:

Concentration of 61% Nitric Acid to 99% Nitric Acid with $Mg(NO_3)_2$ Catalyst

Evaporation, Condensation, and Scrubbing Processes

Absorption Tower and Steam Ejector Control

Conditions E24-1 through E24-7 apply to sources 37-0028-44, -45, -46, -47, -48, -63, -64, and -65

E24-1 Total Nitrogen Oxides (NO_x) emitted from sources 37-0028-44, -45, -46, -47, -48, -63, -64, and -65 shall not exceed 249 tons per year on a 12 months rolling average.

This emission limitation is established pursuant to Rule 1200-3-23-.03(2) of the Tennessee Air Pollution Control Regulations and the information contained in the agreement letter dated February 6, 2006 from the permittee. The permittee has requested this emission limit in order to avoid the requirements of Best Available Retrofit Technology (BART). Prior to increasing this limit, the permittee must perform a BART determination, as described in Section IV of Appendix Y to 40 CFR Part 51 – Guidelines for BART Determinations Under the Regional Haze Rule.

This limitation 1) removes HSAAP from the list of Best Available Retrofit Technology (BART) eligible sources in Tennessee, and 2) allows the units to remain permitted in standby condition whereby they can be restarted.

Compliance Method: Compliance with this limit shall be determined through performing emissions testing on each source within 180 days of restarting any of these sources. The source owner or operator shall furnish the Technical Secretary with a written report of the results of an emissions performance test for the Nitrogen Oxides (NO_x). At least thirty (30) days prior to the actual testing date, the source owner or operator shall furnish the Technical Secretary with a notice as to the actual date of the testing. Approval of the testing protocol by the Technical Secretary or his representative is required prior to giving the notification of the actual testing date.

The results of each emissions test will be used to determine the actual emissions of each source per a 12 month rolling period. Compliance with the NO_x limit will be demonstrated through maintaining a log of actual emissions for each source and all sources combined. Calculations will be based on the emissions rate determined during each test for each source and the hours of operation for each source.

E24-2 The maximum material input rate for each source shall not exceed 10,508 pounds per hour on daily average basis.

Compliance Method: A log of the material input rate, in a form that readily shows compliance with this condition, must be maintained at the source location and kept available for inspection by the Technical Secretary or his representative. All data, including all required calculations, must be entered into the log no later than seven (7) days from the end of the day for which the data is required. This log must be retained for a period of not less than five years.

E24-3 A record of the hours of operation of each source detailing the start-up and shut down times shall be maintained and used along with the emissions test data to calculate the NO_x emissions for the entire group of sources.

E24-4 Each source shall not exceed the allowable NO_x emissions (Tons/year) per source as detailed in the February 6, 2006 Significant Modification.

E24-5 Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for one (1) six-minute period in any one (1) hour period and for no more than four (4) six-minute periods in any twenty-four (24) hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average). TAPCR 1200-3-5-.03(6) and TAPCR 1200-3-5-.01(1)

Compliance Method: The permittee shall assure compliance with the opacity standard by utilizing the opacity matrix dated June 18, 1996 and amended on September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1(iii)

- E24-6** Routine maintenance, as required to maintain specified emission limits, shall be performed on the air pollution control device(s). Maintenance records shall be recorded in a suitable permanent form and kept available for inspection by the Division. These records must be retained for a period of not less than five years.
- E24-7** Upon the malfunction/failure of any emission control device(s) serving this source, the operation of the process(es) served by the device(s) shall be regulated by Chapter 1200-3-20 of the Tennessee Air Pollution Control Regulations.

37-0028-49	Source Description:	<u>Lime Storage and Handling with Baghouse Control (PES B-235-1)</u>
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Conditions E25-1 through E25-2 apply to source 37-0028-49

- E25-1.** Particulate matter emitted from this source shall not exceed 0.25 grains per dry standard cubic foot.

TAPCR 1200-3-7-.04(2)

This is a process emission source whose potential to emit is less than 5 tons per year of particulate matter. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-3-9-.02(11)(e)1.(iii) and 1200-3-10-.04(2)(b)(1), and the compliance requirements of subpart 1200-3-9-.02(11)(e)3.(i). The permittee shall submit annually compliance certification for source 37-0028-49 (lime storage and handling).

TAPCR 1200-3-9-.04(5)(c)3

- E25-2.** Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-53	Source Description:	<u>Open Burning of Explosive Waste</u>
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Conditions E26-1 through E26-8 apply to source 37-0028-53

- E26-1.** Open burning of explosive waste shall be conducted between the hours of 12:00 (noon) and 4:00 p.m. unless there is an air stagnation advisory in East Tennessee. In the instance of such an advisory, open burning shall be terminated at once. It will be the responsibility of the permittee to monitor the local National Oceanic and Atmospheric Administration's Weather Service Office bulletins to determine if acceptable pollutant dispersion conditions are present.

TAPCR 1200-3-4-.04(1)(k) & 1200-3-19-.05(2)

Compliance Method: Compliance with the recordkeeping of condition E15-4 is considered compliance with this condition.

TAPCR 1200-3-19-.06

E26-2. This source shall not be operated in excess of 1300 hours per year.

TAPCR 1200-3-19-.05(2)

Compliance Method: Compliance with this condition is assured by the recordkeeping of condition E26-4.

TAPCR 1200-3-19-.06

E26-3. Burning is limited to non-radioactive, explosive, shock sensitive, chemically unstable, or highly reactive wastes, packaging, or contaminated or potentially contaminated combustible materials including but not limited to explosive formulations, propellants, cellulosic ignition materials, plastic burn pan liners, and any contaminants present in the explosive waste. This limitation is established pursuant to Rule TAPCR 1200-3-4-.04(1)(k) of the Tennessee Air Pollution Control Regulations and the information contained in the agreement letter and permit revision application dated February 1, 2005 from the permittee.

E26-4. The owner or operator of this source with restricted operating hours must maintain a daily log of operating hours and keep it available for inspection by Division personnel on request. The owner or operator shall submit by letter on or before January 31 of each year the total hours of operation for the previous calendar year and the maximum daily operation for the calendar year.

TAPCR 1200-3-19-.06

Compliance Method: In lieu of submitting the previous calendar year operating hours by January 31 of each year, the permittee shall include information of the monitoring of operating hours at this source in the semiannual reports and annual compliance certifications of condition E2 of this permit.

TAPCR 1200-3-9-.02(11)(e)1(iii)

E26-5. This permit does not, and shall not be construed to authorize Holston Army Ammunition Plant to open burn explosive wastes which were shipped to Holston Army Ammunition Plant for the purpose of disposal, except when such burning must be conducted to safely dispose of material of an imminently hazardous nature.

E26-6. Open burning of barium chloride explosive waste is permitted subject to the following restriction:
Explosives waste to be open burned will be limited to 20 pounds per batch with a concentration of barium chloride less than or equal to 0.5%. The Technical Secretary may require proof of compliance with this condition.

TAPCR 1200-3-19-.05

E26-7. Open burning of triamino-trinitro-benzene contaminated waste is permitted subject to the following restrictions:

A. Explosives waste to be open burned will be limited to 36 pounds/month at present or 250 pounds per month at mobilization with triamino-trinitro-benzene contamination of the material being less than or equal to 95% by weight.

B. In the event of mobilization, the total waste explosives to be open burned shall not exceed 730 tons per year and that waste explosives shall not exceed 0.2% by weight of triamino-trinitro-benzene.

The Technical Secretary may require proof of compliance with this condition.

TAPCR 1200-3-19-.05

E26-8. This permit is valid only for the site approved. The burn site shall not be changed without an official approval from the Technical Secretary's representative at the Johnson City Environmental Assistance Center.

TAPCR 1200-3-19-.05

37-0028-56	Source Description:	<u>Manufacturing of 61% Nitric Acid by Ammonia Oxidation Process (PES B-302B-8)</u>
Ammonia, Air, and Water Process Inputs Extended Absorption Column		

Conditions E27-1 through E27-3 apply to source 37-0028-56

E27-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

E27-2. Nitrogen oxides (NO_x) emitted from this source shall not exceed 5.5 pounds per ton of nitric acid produced.

TAPCR 1200-3-7-.08(2)(a)1.

Compliance Method: Compliance with this limit is determined by the results of previous source stack testing conducted October 27, 1986. From test results, the maximum NO_x emission rate was 4.64 pounds NO_x per ton of 100% acid.

TAPCR 1200-3-9-.02(11)(e)1(iii)

E27-3. Nitrogen oxides (NO_x) emitted from this source shall not exceed 400 ppm.

TAPCR 1200-3-7-.08(2)(a)2.

Compliance Method: Compliance with this limit is determined by the results of previous source stack testing conducted October 27, 1986. From test results, the maximum emission concentration of NO_x was 348 ppm.

TAPCR 1200-3-9-.02(11)(e)1(iii)

37-0028-57	Source Description:	<u>Manufacturing of 61% Nitric Acid by Ammonia Oxidation Process (PES B-302B-9)</u>
Ammonia, Air, and Water Process Inputs Extended Absorption Column		

Conditions E28-1 through E28-3 apply to source 37-0028-57

E28-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

E28-2. Nitrogen oxides (NO_x) emitted from this source shall not exceed 5.5 pounds per ton of nitric acid produced.

TAPCR 1200-3-7-.08(2)(a)1.

Compliance Method: Compliance with this limit is determined by the results of previous source stack testing conducted October 6, 1986. From test results, the maximum NO_x emission rate was 3.89 pounds of NO_x per ton of 100% acid.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

E28-3. Nitrogen oxides (NO_x) emitted from this source shall not exceed 400 ppm.

TAPCR 1200-3-7-.08(2)(a)2.

Compliance Method: Compliance with this limit is determined by the results of previous source stack testing conducted October 6, 1986. From test results, the maximum emission concentration of NO_x was 258 ppm.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-58	Source Description:	<u>Manufacturing of 61% Nitric Acid by Ammonia Oxidation Process (PES B-302B-10)</u>
		Ammonia, Air, and Water Process Inputs
		Extended Absorption Column

Conditions E29-1 through E29-3 apply to source 37-0028-58

E29-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

E29-2. Nitrogen oxides (NO_x) emitted from this source shall not exceed 5.5 pounds per ton of nitric acid produced.

TAPCR 1200-3-7-.08(2)(a)1.

Compliance Method: Compliance with this limit is determined by the results of previous source stack testing conducted January 30, 1986. From test results, the maximum NO_x emission rate was 5.42 pounds NO_x per ton of 100% acid.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

E29-3. Nitrogen oxides (NO_x) emitted from this source shall not exceed 400 ppm.

TAPCR 1200-3-7-.08(2)(a)2.

Compliance Method: Compliance with this limit is determined by the results of previous source stack testing conducted January 30, 1986. From test results, the maximum emission concentration of NO_x was 345 ppm.

TAPCR 1200-3-9-.02(11)(e)1(iii)

37-0028-67	Source Description:	<u>Ammonium Nitrate/Nitric Acid Solution Manufacturing (PES B-330-1)</u>
Ammonia and Nitric Acid Reaction; Scrubber Control		

Condition E30-1 applies to source 37-0028-67
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E30-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-75	Source Description:	<u>Recrystallization of HMX (PES B-G5-1)</u>
(5) Solvent Recovery Condensers		

Condition E31-1 applies to source 37-0028-75
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E31-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-76	Source Description:	<u>Coating of HMX (PES B-G5-2)</u>
HMX recrystallization in Methyl Ethyl Ketone, n-Octane, Ethyl Acetate, Butyl Acetate, Isobutyl Acetate, Butyl Alcohol, Ethyl Alcohol, or Isopropyl Alcohol; Solvent Recovery		

Conditions E32-1 through E32-2 apply to source 37-0028-76

E32-1. Volatile organic compounds emitted from this source shall not exceed 0.8 pounds per hour.

TAPCR 1200-3-7-.07(2)

Compliance Method: This is a process emission source whose potential to emit is less than 5 tons per year of volatile organic compounds. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-3-9-.02(11)(e)1.(iii) and 1200-3-10-.04(2)(b)(1), and the compliance requirements of subpart 1200-3-9-.02(11)(e)3.(i). The permittee shall submit annually compliance certification for source 37-0026-76 (coating of HMX).

TAPCR 1200-3-9-.04(5)(c)3

E32-2. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-78	Source Description:	<u>Filtration and Washing of HMX (PES B-E6-1)</u>
Acetic Acid Recovery		
Jet Venturi Scrubber Control		

Condition E33-1 applies to source 37-0028-78
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E33-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-79	Source Description:	<u>Recrystallization and Coating of RDX (PES B-G1-1)</u>
(4) Primary Condensers and Vent Condenser for Solvent Recovery		

Condition E34-1 through E34-2 apply to source 37-0028-79
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E34-1. Volatile organic compounds emitted from this source shall not exceed 3.4 pounds per hour.

TAPCR 1200-3-7-.07(2)

Compliance Method: Compliance with this limit shall be determined by monitoring of batch production rate records and correlation with the calculated maximum emission rate at a maximum process capacity of 5,555 pounds per hour of RDX. This calculated maximum emission rate of 2.87 pounds per hour of VOC is referenced on page C-2 of Chapter 56 of the October 16, 1996 application (enclosed as Attachment 6).

TAPCR 1200-3-9-.02(11)(e)1(iii)

- E34-2.** Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-80 Source Description: <u>Recrystallization of RDX (PES B-G3-1)</u> Dissolution, Distillation, and Condensation Processes 2 Primary Condensers and Vent Condenser for Solvent Recovery

Conditions E35-1 through E35-2 apply to source 37-0028-80

- E35-1.** Volatile organic compounds emitted from this source shall not exceed 7.0 pounds per hour and 29 tons per year.

TAPCR 1200-3-7-.07(2)

Compliance Method: Compliance with this limit shall be determined by monitoring of records of batch production rates and correlation with 12-12-90 source emission testing results (0.05 pounds average VOC emission per hour) obtained during maximum source process capacity operation (24 batches of RDX per day or 4,500 pounds RDX per hour). Calculations are referenced in the October 16, 1996 application (page C-1 of Chapter 58 - enclosed as Attachment 7).

TAPCR 1200-3-9-.02(11)(e)1(iii)

- E35-2.** Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1. If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-81 Source Description: <u>Coating of RDX (PES G-3-2)</u> RDX coating with lacquer / solvent mixture Primary Condenser and Vent Condenser for Solvent Recovery
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Condition E36-1 applies to source 37-0028-81
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E36-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-82 Source Description: Coating of RDX (PES B-G3-3)
RDX Coating with lacquers containing Methyl Ethyl Ketone, and Distillation of Water Saturated with Cyclohexanone
Condenser for Recovery of Solvent

Conditions E37-1 through E37-2 apply to source 37-0028-82

E37-1. Volatile organic compounds emitted from this source shall not exceed 1.3 pounds per hour.

TAPCR 1200-3-7-.07(2)

Compliance Method: Compliance with this limit shall be determined by monitoring of records of batch production rates and correlation with the emission rates calculated for the maximum process capacity of 2,083 pounds water-saturated solvent/hour. These calculated emission rates of 1.04 pounds per hour for cyclohexanone, 0.09 lb/hr for MEK, 0.10 lb/hr for MEK, and 0.001 lb/hr for n-octane are referenced on pages C-2, C-3, C-4, & C-5 of Chapter 61 of the October 16, 1996 application (enclosed as Attachment 8).

TAPCR 1200-3-9-.02(11)(e)1.(iii)

E37-2. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-83 Source Description: Recrystallization of RDX (PES B-G4-1)
(4) Primary Condensers and Vent Condenser for Solvent Recovery

Condition E38-1 applies to source 37-0028-83

E38-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-84 Source Description: Recrystallization of RDX (PES B-G4-2)
(2) Condensers for Solvent Recovery

Condition E39-1 applies to source 37-0028-84

E39-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-85 Source Description: Coating of RDX (PES B-G4-3)
RDX coating with various lacquers containing n-Octane and Distillation of Cyclohexanone Saturated Water
Condenser for Solvent Recovery

Conditions E40-1 through E40-2 apply to source 37-0028-85

E40-1. Volatile organic compounds emitted from this source shall not exceed 0.45 tons per month.

TAPCR 1200-3-7-.07(2)

Compliance Method: Compliance with this limit shall be determined by monitoring of batch production rate records and correlation with the calculated maximum emissions rate at a maximum process capacity of 2,083 pounds of water saturated solvent per hour. The calculated maximum emissions rate of 1.04 pounds per hour for cyclohexanone and 0.001 pounds per hour for n-octane is referenced on page C-2 of Chapter 65 of the October 16, 1996 application (enclosed as Attachment 9).

TAPCR 1200-3-9-.02(11)(e)1.(iii)

E40-2. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-86 **Source Description:** **Recrystallization of HMX (PES B-G6-1)**
(5) Condensers for Solvent Recovery

Condition E41-1 applies to source 37-0028-86

E41-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-87 **Source Description:** **HMX Recrystallization (PES B-G6-2)**
Condenser for Solvent Recovery

Condition E42-1 applies to source 37-0028-87

E42-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-88 **Source Description:** **Coating of RDX or HMX (PES B-G6-3)**
Condenser for Solvent Recovery

Condition E43-1 through E43-2 apply to source 37-0028-88

E43-1. Volatile organic compounds emitted from this source shall not exceed 1.1 pounds per hour.

TAPCR 1200-3-7-.07(2)

This is a process emission source whose potential to emit is less than 5 tons per year of volatile organic compounds. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-3-9-.02(11)(e)1.(iii) and 1200-3-10-.04(2)(b)(1), and the compliance requirements of subpart 1200-3-9-.02(11)(e)3.(i). The permittee shall submit annually compliance certification for source 37-0028-88 (coating of RDX or HMX).

TAPCR 1200-3-9-.04(5)(c)3

- E43-2. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-89	Source Description:	<u>Coating of RDX or HMX (PES B-G6-4)</u>
Coating of HMX or RDX with Various Solvent-based Lacquers/ Nitroplasticizer		
Solvent Recovery Condenser		

Condition E44-1 applies to source 37-0028-89
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- E44-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-92	Source Description:	<u>Lacquer Preparation (PES B-150-1)</u>
Solvent and Binder Mixing; Vents A, B, C, D		

Conditions E45-1 through E45-2 apply to source 37-0028-92

- E45-1. Volatile organic compounds emitted from this source shall not exceed 3.64 pounds per hour per vent, not to exceed a combined total of 7.28 pounds per hour.

TAPCR 1200-3-7-.07(2)

Compliance Method: Compliance with this limit shall be determined by monitoring of batch production rate records and calculation of the maximum emissions by the method presented on page C-2 of Chapter 37 of the October 16, 1996 application and enclosed as Attachment 10.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

- E45-2. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-0028-97 Source Description: Fly Ash Storage Bin (PES B-235-2)
Bagfilter Dust Collector Control

Conditions E46-1 and E46-2 apply to source 37-0028-97

E46-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

E46-2. Particulate matter emitted from this source shall not exceed 0.25 grains per dry standard cubic foot.

TAPCR 1200-3-7-.04(2)

Compliance Method: This is a process emission source whose potential to emit is less than 5 tons per year of particulate matter. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-3-9-.02(11)(e)1.(iii) and 1200-3-10-.04(2)(b)(1), and the compliance requirements of subpart 1200-3-9-.02(11)(e)3.(i). The permittee shall submit annually compliance certification for source 37-0028-97 (fly ash storage bin).

TAPCR 1200-3-9-.04(5)(c)3

37-0028-98 Source Description: Bulk Lime Silo @ Building 224 (PES B-224-B)
Lime Unloading to Wastewater Treatment
Bagfilter Control

Conditions E47-1 through E47-3 apply to source 37-0028-98

E47-1. Particulate matter emitted from this source shall not exceed 2.5 pounds per hour.

TAPCR 1200-3-19-.05(2)

Compliance Method: Compliance with this limit is determined by the calculation contained in the permit application of October 16, 1996 (page C-1 of chapter 25, enclosed as Attachment 15).

TAPCR 1200-3-9-.02(11)(e)1.(iii)

- E47-2.** This source shall not be operated in excess of 100 hours per year. The owner or operator of this source with restricted operating hours must maintain a log of operating hours and keep it available for inspection by Division personnel on request. The owner or operator shall submit by letter on or before January 31 of each year the total hours of operation for the previous calendar year.

TAPCR 1200-3-19-.05(2) and TAPCR 1200-3-19-.06

Compliance Method: In lieu of submitting the previous calendar year operating hours by January 31 of each year, the permittee shall include information of the monitoring of operating hours at this source in the semiannual reports and annual compliance certifications of condition E2 of this permit.

TAPCR 1200-3-9-.02(11)(e)1(iii)

- E47-3.** (a) No person shall cause, suffer, allow or permit discharge of visible emissions from any fugitive dust source with an opacity in excess of ten (10) percent for an aggregate of fifteen (15) minutes. Readings are to be taken across the narrower direction if the generation site is rectangular or oblong and are to be perpendicular to the wind direction ($\pm 30^\circ$). Readings will be taken approximately every 15 seconds for any consecutive fifteen minute period and an arithmetic average used to determine compliance. Any other items not covered here will be in accordance with the general specifications of the reference method as specified in Part 1200-3-16-.01(5)(g)9.

TAPCR 1200-3-8-.02 and 1200-3-19-.05(2)

(b) Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1(iii)

37-1028-29 Source Description: <u>Sodium Nitrate Recovery Process (PES B-T2-1)</u> Sodium Nitrate Concentration & Drying; Rotary Dryer; Scrubber Control
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Condition E48-1 applies to source 37-1028-29
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- E48-1.** Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1).

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1(iii)

37-1028-37 **Source Description:** **Filtering and Washing of Crude RDX (PES B-E8-1)**
Packed Scrubber Control

Conditions E49-1 through E49-2 apply to source 37-1028-37

E49-1. Volatile organic compounds emitted from this source shall not exceed 3.0 pounds per hour.

TAPCR 1200-3-7-.07(2)

Compliance Method: Compliance with this limit is determined by monitoring batch production rate records and correlation to calculated emissions at a maximum process capacity of 6,300 pounds per hour of RDX. From process material balance emission rate calculation (referenced on page C-1 of Chapter 54 of the October 16, 1996 application & enclosed as Attachment 11), the maximum emission rate is 2.4 pounds per hour of VOC.

TAPCR 1200-3-9-.02(11)(e)1(iii)

E49-2. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1(iii)

37-1028-39 **Source Description:** **Filtering and Washing of Crude RDX (PES B-E10-1)**
(2) Packed Scrubbers for Control

Conditions E50-1 through E50-2 apply to source 37-1028-39

E50-1. Volatile organic compounds emitted from this source shall not exceed 5.9 pounds per hour (25.9 tons per year).

TAPCR 1200-3-7-.07(2)

Compliance Method: Compliance with this limit is determined by monitoring of batch production rate records and correlation to the calculated emissions rate at a maximum process capacity of 6,300 pounds. From process emissions analysis, referenced on page C-2 of Chapter 55 of the October 16, 1996 application and enclosed as Attachment 12, the maximum emission rate is 2.64 pounds per hour of VOC and calculated scrubber efficiency is 96% for VOC.

TAPCR 1200-3-9-.02(11)(e)1(iii)

E50-2. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-1028-90 **Source Description:** **Coating of RDX or HMX (PES B-G5-3)**
Solvent Recovery Condenser

Condition E51-1 applies to source 37-1028-90

E51-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-1028-96 **Source Description:** **Coal Handling System for Area B (PES B-200-4)**
with Coal Crusher, Conveyors, & Screens - Bagfilter, Enclosed Conveyors, & Water Spray Controls NSPS

Conditions E52-1 through E52-5 apply to source 37-1028-96

E52-1. Particulate matter emitted from this source shall not exceed 3.5 pounds per hour.

TAPCR 1200-3-7-.01(5)

Compliance Method: This is a process emission source whose potential to emit is less than 5 tons per year of particulate matter. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-3-9-.02(11)(e)1.(iii) and 1200-3-10-.04(2)(b)(1), and the compliance requirements of subpart 1200-3-9-.02(11)(e)3.(i). The permittee shall submit annually compliance certification for source 37-1028-96 (coal handling system for Area B).

TAPCR 1200-3-9-.04(5)(c)3

E52-2. Visible emissions (including fugitive emissions) from this source shall not exhibit greater than ten percent (10%) opacity, except for one (1) six-minute period in any one (1) hour period and for no more than four (4) six-minute periods in any twenty-four (24) hour period. Visible emissions from this source shall be determined by EPA Method 9, as published in the current 40 CFR 60, Appendix A (six-minute average). TAPCR 1200-3-5-.03(6), TAPCR 1200-3-5-.01(1), and TAPCR 1200-3-10-.02(10)(a).

TAPCR 1200-3-5-.03(6) and the operating permit no. 033633P

Compliance Method: This is a process emission source whose potential to emit is less than 5 tons per year of particulate matter. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-3-9-.02(11)(e)1.(iii) and 1200-3-10-.04(2)(b)(1), and the compliance requirements of subpart 1200-3-9-.02(11)(e)3.(i). The permittee shall submit annually compliance certification for source 37-1028-96 (coal handling system for Area B).

TAPCR 1200-3-9-.04(5)(c)3

- E52-3. Visible emissions from roads shall meet 10% opacity utilizing Tennessee Visible emission Evaluation (TVEE) Method 1, as adopted by the Tennessee Air Pollution Control Board on April 29, 1982, as amended on September 15, 1982, and as amended on August 24, 1984.

(This requirement is from the operating permit no. 033633P.)

Compliance Method: This is a process emission source whose potential to emit is less than 5 tons per year of particulate matter. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-3-9-.02(11)(e)1.(iii) and 1200-3-10-.04(2)(b)(1), and the compliance requirements of subpart 1200-3-9-.02(11)(e)3.(i). The permittee shall submit annually compliance certification for source 37-1028-96 (coal handling system for Area B).

TAPCR 1200-3-9-.04(5)(c)3

- E52-4. The wet suppression system shall be maintained in good working condition in order to provide sufficient water pressure to effectively control fugitive emissions.

TAPCR 1200-3-8-.02

- E52-5. Wet suppression shall be applied at the track hopper stockout chute and storage piles as necessary to control fugitive emissions.

TAPCR 1200-3-8-.02

37-1028-98 Source Description: (4) Lacquer Pots for Lacquer Preparation (PES B-150-4) Mixing of Solvent and Binder; Loading of Lacquer to Lacquer Wagons
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Conditions E53-1 through E53-2 apply to source 37-1028-98

- E53-1. Volatile organic compounds emitted from this source shall not exceed 1.0 pounds per hour.

TAPCR 1200-3-7-.07(2)

Compliance Method: This is a process emission source whose potential to emit is less than 5 tons per year of volatile organic compounds. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-3-9-.02(11)(e)1.(iii) and 1200-3-10-.04(2)(b)(1), and the compliance requirements of subpart 1200-3-9-.02(11)(e)3.(i). The permittee shall submit annually compliance certification for source 37-1028-98 (lacquer pots for lacquer preparation).

TAPCR 1200-3-9-.04(5)(c)3

- E53-2. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-1028-99	Source Description:	<u>Sodium Nitrate Sludge Drving Process (PES B-T2-2)</u>
Double Drum Dryer; Scrubber Control		

Conditions E54-1 and E54-2 apply to source 37-1028-99

E54-1. Particulate matter emitted from this source shall not exceed 0.216 pounds per hour.

TAPCR 1200-3-7-.01(5)

Compliance Method: Compliance with this limit shall be determined by monitoring the scrubber spray water flow rate and pressure hourly to maintain at least 3 gallons per minute water flow rate and 40 psi. water pressure. These parameters shall be recorded in a hourly log and kept available for inspection by the Technical Secretary or his representative.

TAPCR 1200-3-9-.02(11)(e)1(iii)

E54-2. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-1029-03	Source Description:	<u>Plasma Arc Cutting Machine (PES B-551-1)</u>
Cyclone Control		

Conditions E55-1 through E55-4 apply to source 37-1029-03

E55-1. Particulate matter emitted from this source shall not exceed 0.02 grains per dry standard cubic foot (0.45 pounds per hour).

TAPCR 1200-3-7-.04(1)

Compliance Method: This is a process emission source whose potential to emit is less than 5 tons per year of particulate matter. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-3-9-.02(11)(e)1.(iii) and 1200-3-10-.04(2)(b)(1), and the compliance requirements of subpart 1200-3-9-.02(11)(e)3.(i). The permittee shall submit annually compliance certification for source 37-1029-03 (plasma arc cutting machine).

TAPCR 1200-3-9-.04(5)(c)3

E55-2. Carbon monoxide emitted from this source shall not exceed 56.0 pounds per hour.

TAPCR 1200-3-7-.07(2)

Compliance Method: Compliance with this limit is determined by reference to the calculation contained on page 9 of Chapter 19 of the October 16, 1996 permit application (enclosed as Attachment 13).

TAPCR 1200-3-9-.02(11)(e)1(iii)

E55-3. Operating time for this source shall not exceed 2,080 hours per year.

Compliance Method: A log of operating hours for this source must be maintained at the facility and kept available for inspection by the Technical Secretary or his representative.

TAPCR 1200-3-9-.02(11)(e)1(iii)

- E55-4.** Visible emissions from this source shall not exceed zero (0) percent opacity as determined by EPA Method 9 as specified in the current 40 CFR 60, Appendix A (6 minute average).

TAPCR 1200-3-5-.03(6) and the operating permit no. 033183P

Compliance Method: Compliance with this standard shall be determined by the procedures of the Division's opacity Matrix dated June 18, 1996 enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1(iii)

37-1029-05	Source Description:	<u>Recrystallization of RDX (PES B-G8-2)</u>
Solvent Recovery Condensers		
LAER-PSD		

Conditions E56-1 through E56-2 apply to source 37-1029-05

- E56-1.** Volatile organic compounds emitted from this source shall not exceed 12.9 pounds per hour.

TAPCR 1200-3-18-.03(2) (regulations when limits were established) leading to 1200-3-9-.01(5)(b)2

Compliance Method: This is a process emission source whose potential to emit is less than 5 tons per year of volatile organic compounds. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-3-9-.02(11)(e)1(iii) and 1200-3-10-.04(2)(b)(1), and the compliance requirements of subpart 1200-3-9-.02(11)(e)3.(i). The permittee shall submit annually compliance certification for source 37-1029-05 (recrystallization of RDX).

TAPCR 1200-3-9-.04(5)(c)3

- E56-2.** Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1. If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1(iii)

37-1029-06	Source Description:	<u>Coating of RDX (PES B-G8-3)</u>
Process Inputs: RDX, Solvents, Vistanex, Adipate, Oil		
Solvent Recovery Condensers		
LAER-PSD		

Conditions E57-1 through E57-2 apply to source 37-1029-06

E57-1. Volatile organic compounds emitted from this source shall not exceed 0.5 pounds per hour.

TAPCR 1200-3-18-.03(2) (regulations when limits were established) leading to 1200-3-9-.01(5)(b)2

Compliance Method: This is a process emission source whose potential to emit is less than 5 tons per year of volatile organic compounds. By annual certification of compliance, the permittee shall be considered to meet the monitoring and related recordkeeping and reporting requirements of TAPCR 1200-3-9-.02(11)(e)1.(iii) and 1200-3-10-.04(2)(b)(1), and the compliance requirements of subpart 1200-3-9-.02(11)(e)3.(i). The permittee shall submit annually compliance certification for source 37-1029-06 (coating of RDX).

TAPCR 1200-3-9-.04(5)(c)3

E57-2. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

37-1029-09 Source Description: RDX and HMX Nitration Process (PES B-D5-1)
Nitration, Aging and Simmering; (2) Packed Column Scrubbers
Process Inputs: Nitric Acid/Ammonium Nitrate, Hexamine/Acetic Acid, Acetic Acid, Acetic Anhydride
LAER-PSD

Conditions E58-1 through E58-3 apply to source 37-1029-09

E58-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

E58-2. Volatile organic compounds emitted from this source shall not exceed 19.9 pounds per hour.

TAPCR 1200-3-18-.03(2) (regulations when the limit was established) leading to 1200-3-9-.01(5)(b)2

Compliance Method: Compliance with this limit shall be determined by monitoring the scrubber water flowrate two (2) times per shift when the process is in operation and monitoring of batch production rate records and correlation to measured emissions at a maximum process capacity of 2,588 pounds per hour of RDX or 436 pounds per hour of HMX. The scrubbing

water flowrate readings shall be recorded in a log to be maintained at the facility. From process emissions testing (results referenced on page C-2 of Chapter 44 of the October 16, 1996 application and enclosed as Attachment 14), the maximum emission rate is 0.45 pounds per hour of VOC.

TAPCR 1200-3-9-.02(11)(e)1(iii)

E58-3. Nitrogen oxides emitted from this source shall not exceed 2.2 pounds per hour.

TAPCR 1200-3-7-.07(2)

Compliance Method: Compliance with this limit shall be determined by monitoring of batch production rate records and correlation to the measured emissions rate at a maximum process capacity of 2,588 pounds per hour of RDX or 436 pounds per hour of HMX. From similar process emissions testing (results referenced on page C-2 of Chapter 44 of the October 16, 1996 application and enclosed as Attachment 14), the maximum emission rate is 1.81 pounds per hour of nitrogen oxides.

TAPCR 1200-3-9-.02(11)(e)1(iii)

37-1029-14 Source Description: Coating of RDX or HMX (PES B-G7-2)

Process Inputs: RDX/HMX, Solvents, and Lacquer Mixtures
Solvent Recovery Condenser

Conditions E59-1 through E59-2 apply to source 37-1029-14

E59-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1(iii)

E59-2. Volatile organic compounds emitted from this source shall not exceed 2.1 pounds per hour.

TAPCR 1200-3-7-.07(2)

Compliance Method: Compliance with this limit is determined by monitoring of batch production rate records, solvent additions to the storage tank and dissolver still, and process input of lacquers, and calculation of the VOC emissions. The calculation method is similar to the emissions calculations for source 37-0028-82 on pages C-2, C-3, C-4, & C-5 of Chapter 61 of the October 16, 1996 application (enclosed as Attachment 8).

TAPCR 1200-3-9-.02(11)(e)1(iii)

37-0028-77 Source Description: Filtration and Washing of Crude RDX/ HMX (PES E-5-1)

Acetic Acid Recovery
Jet Venturi Scrubber Control

Condition E60-1 applies to source 37-0028-77

E60-1. Visible emissions from this source shall not exhibit greater than twenty percent (20%) opacity, except for an aggregate of no more than five (5) minutes in any one (1) hour period, and no more than twenty (20) minutes in any twenty-four (24) hour period. Visible emissions from this source shall be determined by Tennessee Visible Emission Evaluation Method 2, as adopted by the Tennessee Air Pollution Control Board on August 24, 1984 (aggregate count). TAPCR 1200-3-5-.01(1)

Compliance Method: Compliance with this standard shall be determined by the procedures specified in the Division's Opacity Matrix for TVEE Method 2 dated June 18, 1996 and amended September 12, 2005 that is enclosed as Attachment 1.

If the magnitude and frequency of excursions reported by the permittee in the periodic monitoring for emissions is unsatisfactory to the Technical Secretary, this permit may be reopened to impose additional opacity monitoring requirements.

TAPCR 1200-3-9-.02(11)(e)1.(iii)

END OF PERMIT NUMBER: 558406

ATTACHMENT 1

**Opacity Matrix Decision Trees for Visible Emission Evaluation by TVEE
Method 2 and EPA Method 9,**

Dated June 18, 1996 and amended September 12, 2005

**Decision Tree PM for Opacity for
Sources Subject to Rule 1200-3-5-.01
Utilizing TVEE Method 2**

Notes:

PM = Periodic Monitoring required by 1200-3-9-.02(11)(e)(iii).

This Decision Tree outlines the criteria by which major sources can meet the periodic monitoring and testing requirements of Title V for demonstrating compliance with the visible emission standards in paragraph 1200-3-5-.01. It is not intended to determine compliance requirements for EPA's Compliance Assurance Monitoring (CAM) Rule (formerly referred to as Enhanced Monitoring - Proposed 40 CFR 64).

Examine each emission unit using this Decision Tree to determine the PMT required.

Use of continuous emission monitoring systems eliminates the need to do any additional periodic monitoring.

Visible Emission Evaluations (VEEs) are to be conducted utilizing Tennessee Visible Emission Evaluation Method 2. The observer must be properly certified according to the criteria specified in EPA Method 9 to conduct TVEE Method 2 evaluations.

Typical Pollutants
Particulates, VOC, CO, SO₂, NO_x, HCl, HF, HBr, Ammonia, and Methane.

Initial observations are to be repeated within 90 days of startup of a modified source, if a new construction permit is issued for modification of the source.

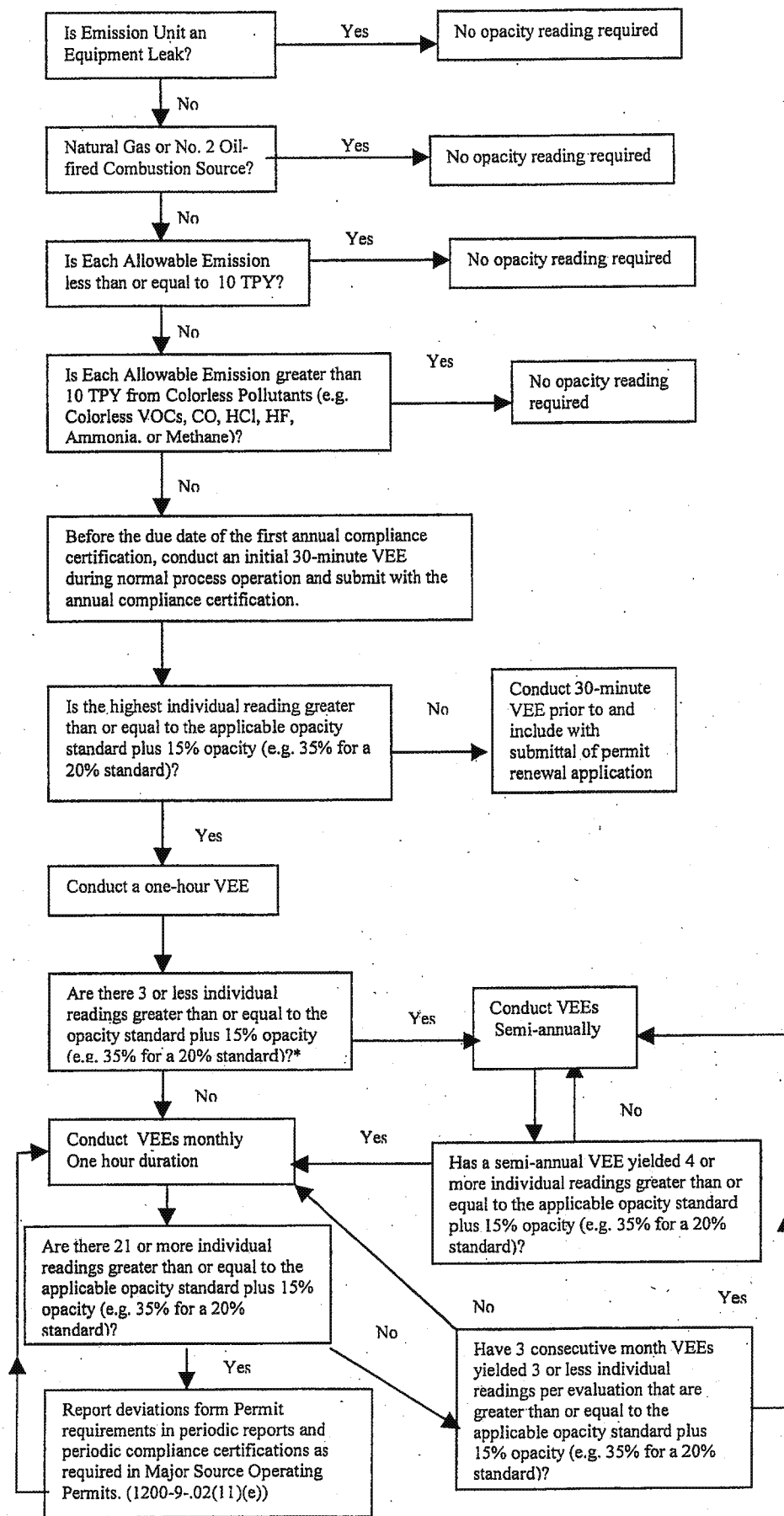
A VEE conducted by TAPCD personnel after the Title V permit is issued will also constitute an initial reading.

Reader Error
TVEE Method 2: The TAPCD declares non-compliance when 21 observations are read at the standard plus 15% opacity (e.g. 35% for a 20% standard).

*The rationale for this is the fact that Rule 1200-3-5-.01 allows for an exemption of 5 minutes (20 readings) per hour and up to 20 minutes (80 readings) per day. With 4 or more excessive individual readings per hour the possibility of a daily exceedance exists.

Note: A company could mutually agree to have all of its sources regulated by EPA Method 9. Caution: Agreement to use Method 9 could potentially place some sources in non-compliance with visible emission standards. Please be sure before you agree.

Dated June 18, 1996
Amended September 12, 2005



Decision Tree PM for Opacity for Sources Utilizing EPA Method 9*

Notes:

PM = Periodic Monitoring required by 1200-3-9-.02(11)(e)(iii).

This Decision Tree outlines the criteria by which major sources can meet the periodic monitoring and testing requirements of Title V for demonstrating compliance with the visible emission standards in paragraph 1200-3-5-.01. It is not intended to determine compliance requirements for EPA's Compliance Assurance Monitoring (CAM) Rule (formerly referred to as Enhanced Monitoring - Proposed 40 CFR 64).

Examine each emission unit using this Decision Tree to determine the PM required.*

Use of continuous emission monitoring systems eliminates the need to do any additional periodic monitoring.

Visible Emission Evaluations (VEEs) are to be conducted utilizing EPA Method 9. The observer must be properly certified to conduct valid evaluations.

Typical Pollutants
Particulates, VOC, CO, SO₂, NO_x, HCl, HF, HBr, Ammonia, and Methane.

Initial observations are to be repeated within 90 days of startup of a modified source, if a new construction permit is issued for modification of the source.

A VEE conducted by TAPCD personnel after the Title V permit is issued will also constitute an initial reading.

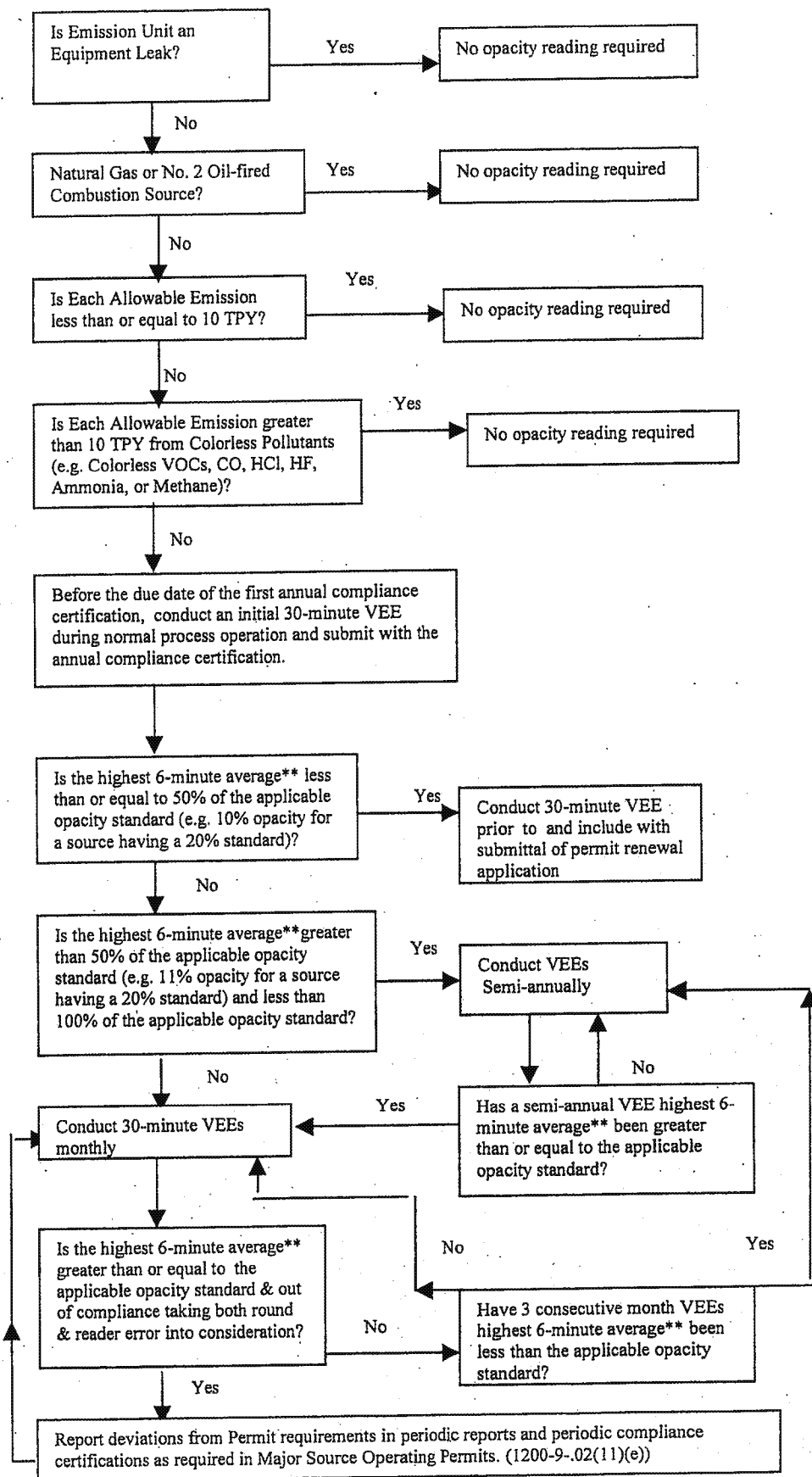
Reader Error
EPA Method 9, Non-NSPS or NESHAPS stipulated opacity standards:
The TAPCD guidance is to declare non-compliance when the highest six-minute average** exceeds the standard plus 6.8% opacity (e.g. 26.8% for a 20% standard).

EPA Method 9, NSPS or NESHAPS stipulate opacity standards:
EPA guidance is to allow only engineering round. No allowance for reader error is given.

*Not applicable to Asbestos manufacturing subject to 40 CFR 61.142

**Or second highest six-minute average, if the source has an exemption period stipulated in either the regulations or in the permit.

Dated June 18, 1996
Amended September 12, 2005



ATTACHMENT 2

**AP-42 Fifth Edition Table 1.1-1 for Coal Combustion Emission
Factors**

Table 1.1-1 (English Units). EMISSION FACTORS FOR SULFUR OXIDES (SO_x), NITROGEN OXIDES (NO_x), AND CARBON MONOXIDE (CO) FROM BITUMINOUS AND SUBBITUMINOUS COAL COMBUSTION^a

Firing Configuration	SCC	SO _x ^b		NO _x ^c		CO ^{d,e}	
		lb/ton	EMISSION FACTOR RATING	lb/ton	EMISSION FACTOR RATING	lb/ton	EMISSION FACTOR RATING
Pulverized coal fired, dry bottom, wall fired	1-01-002-02/22	38S (35S)	A	21.7	A	0.5	A
	1-02-002-02/22						
	1-03-002-06/22						
Pulverized coal fired, dry bottom, tangentially fired	1-01-002-12/26	38S (35S)	A	14.4	A	0.5	A
	1-02-002-12/26						
	1-03-002-16/26						
Pulverized coal fired, wet bottom	1-01-002-01/21	38S (35S)	D	34.0	C	0.5	A
	1-02-002-01/21						
	1-03-002-05/21						
Cyclone furnace	1-01-002-03/23	38S (35S)	D	33.8	C	0.5	A
	1-02-002-03/23						
	1-03-002-03/23						
Spreader stoker	1-01-002-04/24	38S (35S)	B	13.7	A	5	A
	1-02-002-04/24						
	1-03-002-09/24						
Spreader stoker, with multiple cyclones, and reinjection	1-01-002-04/24	38S (35S)	B	13.7	A	5	A
	1-02-002-04/24						
	1-03-002-09/24						
Spreader stoker, with multiple cyclones, no reinjection	1-01-002-04/24	38S (35S)	A	13.7	A	5	A
	1-02-002-04/24						
	1-03-002-09/24						
Overfeed stoker ^f	1-01-002-05/25	38S (35S)	B	7.5	A	6	B
	1-02-002-05/25						
	1-03-002-07/25						

Table 1.1-1 (cont.).

Firing Configuration	SCC	SO _x ^b		NO _x ^c		CO ^{d,e}	
		lb/ton	EMISSION FACTOR RATING	lb/ton	EMISSION FACTOR RATING	lb/ton	EMISSION FACTOR RATING
Feed stoker, with multiple cyclones ^f	1-01-002-05/25	38S (35S)	B	7.5	A	6	B
	1-02-002-05/25						
	1-03-002-07/25						
Underfeed stoker	1-02-002-06 1-03-002-08	31S	B	9.5	A	11	B
Underfeed stoker, with multiple cyclones	1-02-002-06 1-03-002-08	31S	B	9.5	A	11	B
Hand-fed units	1-03-002-14	31S	D	9.1	E	275	E
Fluidized bed combustor, circulating bed	1-01-002-17 1-02-002-17 1-03-002-17	— ^g	E	3.9	E	18	E
Fluidized bed combustor, bubbling bed	1-01-002-17 1-02-002-17 1-03-002-17	— ^g	E	15.2	D	18	D

^a Factors represent uncontrolled emissions unless otherwise specified and should be applied to coal feed, as fired. SCC = Source Classification Code.

^b Expressed as SO₂, including SO₂, SO₃, and gaseous sulfates. Factors in parentheses should be used to estimate gaseous SO_x emissions for subbituminous coal. In all cases, S is weight percent sulfur content of coal as fired. Emission factor would be calculated by multiplying the weight percent sulfur in the coal by the numerical value preceding S. On average for bituminous coal, 95% of fuel sulfur is emitted as SO₂, and only about 0.7% of fuel sulfur is emitted as SO₃ and gaseous sulfate. An equally small percent of fuel sulfur is emitted as particulate sulfate (References 9, 13). Small quantities of sulfur are also retained in bottom ash. With subbituminous coal, about 10% more fuel sulfur is retained in the bottom ash and particulate because of the more alkaline nature of the coal ash. Conversion to gaseous sulfate appears about the same as for bituminous coal.

^c Expressed as NO₂. Generally, 95+ volume % of nitrogen oxides present in combustion exhaust will be in the form of NO, the rest NO₂ (Reference 11). To express factors as NO, multiply factors by 0.66. All factors represent emission at baseline operation (i. e., 60 to 110% load and no NO_x control measures).

Table 1.1-1 (cont.).

- ^d Nominal values achievable under normal operating conditions. Values 1 or 2 orders of magnitude higher can occur when combustion is not complete.
- ^e Emission factors for CO₂ emissions from coal combustion should be calculated using CO₂/ton coal = 73.3C, where C is the weight percent carbon content of the coal.
- ^f Includes traveling grate, vibrating grate, and chain grate stokers.
- ^g Sulfur dioxide emission factors for fluidized bed combustion are a function of fuel sulfur content and calcium-to-sulfur ratio. For both bubbling bed and circulating bed design, use: lb SO₂/ton coal = 39.6(S)(Ca/S)^{1.9}. In this equation, S is the weight percent sulfur in the fuel and Ca/S is the molar calcium-to-sulfur ratio in the bed. This equation may be used when the Ca/S is between 1.5 and 7. When no calcium-based sorbents are used and the bed material is inert with respect to sulfur capture, the emission factor for underfeed stokers should be used to estimate the FBC SO₂ emissions. In this case, the emission factor ratings are E for both bubbling and circulating units.

ATTACHMENT 3

**VOC Emissions/ Material Balance Analysis for Filtering,
Washing and Weighing of RDX (37-0028-16)**

EMISSIONS CALCULATION FORM-GENERAL

PES #: B-E1-1

VENT OR STACK I. D. : A

PROCESS: Continuous RDX Filtration/Wash

Reference: Report # HDC- 28- 76; Evaluation of Prototype Building E-1; Final Engineering Report

Acetic Acid rate from scrubber = 0.04 lbs./min. = 2.4 lbs./hr. = 10.0 TPY (Point A)

This rate is based on material balance data from building operations at the projected maximum rate.

Fugitive emissions: IEUs.

Page No. 2-1

Revision No. 0

Date of Revision N/A

ATTACHMENT 4

**Calculation of VOC and Nitric Acid Emission from RDX
Production by Nitration (37-0028-21)**

Emission Calculations for Building D-10 Nitrolysis Process

Material Input Rate (total)	50200 #s / hour
Equivalent Production Rate	140 #s / minute
Scrubber System Efficiency*	80% for acetic acid
	36% for NOx

* Efficiency Data estimates are derived from both engineering estimates and source testing performed on other similar units at Holston

Acetic Acid Emissions

Tests performed on building D-3 showed the following:

(Tests TM 89-14 and TM 91-15)

Tested D-3 Production Rate:	40 #s / minute
Calculated VOC emissions (03/89 test)	6.41 #s / day
	0.267083 #s / hour
	1.169825 tons / year
Allow 5X for seasonal and process variation	5.849125 tons allowable
	1.335417 #s hour allowable

Correlation of D-10 to D-3

Production rate ratio 40 to 140 #s / minute	4.673958 #s / hour
D-10 process scrubber exhaust	20.47194 tons / year
D-10 allowable fugitive and tank emissions	0.796042 #s / hour (estimated)\

Total D-10 VOC allowable emission	5.47 #s / hour
	23.96 tons / year

D-10 NOx emissions

D-3 method 7A testing showed	2.61 #s / day
Correlation of D-10 to D-3	9.135 #s / day
Production rate ratio 40 to 140 #s / minute	1.667138 tons / year
Allow 5X for seasonal and process variation	1.903125 #s / hour
	8.335688 tons / year

NOTES for D-10 Emission Calculations

- 1 There is NO nitric acid emitted from this process, all nitrate emissions are NOx
This appears to have been a previous error resulting from expression of the test method
In a method 7A analysis, NOx is measured as Nitric Acid but the air emission is NOx
- 2 Old large emission tonnage SIP permit allowables were found clearly too high and uncertainty remains as to the origin of the oldest permit application data.
Speculation is not warranted as NOx emission did not have limits at that time.
Suffice that those numbers could have been derived in a number of different ways.
- 3 Seasonal and process variation must be allowed for.
The D-3 testing was done under steady state conditions and represents nominal emissions. Emissions are though to be different under various temperature extremes, start-ups, shut-downs, and cleanout scenarios

ATTACHMENT 5

**Calculation of Particulate Emissions from Recrystallization and
Coating of RDX (37-0028-26)**

370028-26

PES # B-G10-1
Stearic acid particulates
(Non-Stack Emissions)

60 lbs. stearic acid/batch

water

Stearic Acid

Melt Kettle

(typical)

heat added

57 lbs. stearic acid/batch
to processing still

The losses occur in the coating of the kettle, process lines,
and the slurry water itself. Particulate air emissions are minimal but
are roughly estimated at 5% of the loss.

$$0.05 \times 3 \text{ lbs./575 minutes} \times 60 \text{ min/hr} \approx 0.02 \text{ lbs/hr. for each kettle}$$

Note: 575 minutes is the cycle time for the entire batch of Composition A-5, which is RDX coated with stearic acid.

Specification averages 1.25% stearic acid/batch with a batch size of 4560 lbs.
 $0.0125 \times 4560 \text{ lbs.} = 57 \text{ lbs.}$

8/96

ATTACHMENT 6

**Calculation of VOC Emission from Recrystallization of RDX
(37-0028-79)**

HOLSTON DEFENSE CORPORATION

SKETCH AND COMPUTATION SHEET

No. _____

3124
5-72)

SUBJECT Calculations, B-G1-1A

JOB NO.	BLDG
PREPARED BY	DATE
APPROVED BY	DATE
APPROVED BY	DATE
DATE REQUIRED	
DRAWINGS REF.	
SHEET NO. <u>1</u>	OF <u>1</u>

USE THIS SHEET FOR ALL IMPORTANT COMPUTATIONS

Vent Condenser (Stack I.D. #A)

1. Condensate rate $\approx 20 \frac{\text{gpm}}{\text{still}}$ max. from Composition B, Line 1 Report

$$T = 95^{\circ}\text{C} = 203^{\circ}\text{F}$$

2. Assume vapor exhaust rate is equivalent to the condensate rate of condensers.

$$20 \frac{\text{gpm}}{\text{still}} \times 8 \text{ stills} \times \frac{1 \text{ ft}^3}{7.48 \text{ gal}} = 21.4 \frac{\text{ft}^3}{\text{min}} = 0.357 \text{ cfs}$$

3. Weight fraction cyclohexanone in distillate = 0.295
" " " " " " = 0.705

$$4. \text{ mole fraction cyclohexanone} = \frac{29.5}{98} \div \left(\frac{29.5}{98} + \frac{70.5}{18} \right) = \frac{.301}{.301 + 3.92} \approx .071$$

$$\text{mole fraction water} = .929$$

5. Vapor pressure of cyclohexanone @ 203°F $\approx 123 \text{ mm Hg}$
" " " " " " $\approx 654 \text{ " H}_2\text{O}$

$$\text{Vol. fr. cyc} = \frac{(123)(.071)}{[(123)(.071) + (.929)(654)]} = \frac{8.73}{8.73 + 607.6} \approx 0.011$$

6. Density of cyclohexanone @ 203°F

$$\rho_{\text{cyc}} = \frac{98 \text{ lbs/mol}}{359 \text{ ft}^3/\text{mol}} \times \frac{492^{\circ}\text{R}}{663^{\circ}\text{R}} = 0.203 \text{ lbs/ft}^3$$

$$7. \text{ Mass rate} = \left(0.203 \frac{\text{lbs}}{\text{ft}^3} \right) / (0.011) \left(21.4 \frac{\text{ft}^3}{\text{min}} \right) \left(\frac{60 \text{ min}}{\text{hr}} \right) = 2.87 \text{ lbs/hr}$$

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ATTACHMENT 7

**Calculation of VOC Emission from Recrystallization of RDX
(37-0028-80)**

EMISSIONS CALCULATION FORM-GENERAL

PES #: B-G3-1

VENT OR STACK I. D. : C

PROCESS: Batch Recrystallization of RDX in Cyclohexanone (C)

Emissions based on source testing dated 12-12-90. Average emission rate used based on the number of samples analyzed.

Fugitive emissions: IEUs

Average emission rate from source testing = $0.05 \frac{\text{lbs cyc}}{\text{ba}}$

$$0.05 \frac{\text{lbs cyc}}{\text{ba}} \times 24 \frac{\text{ba}^*}{\text{day}} \times \frac{1 \text{ day}}{24 \text{ hrs}} = 0.05 \frac{\text{lbs cyc}}{\text{hr}}$$

$$\text{TPY} = 0.05 \frac{\text{lbs cyc}}{\text{hr}} \times 24 \frac{\text{hrs}}{\text{day}} \times 350 \frac{\text{days}}{\text{yr}} \times \frac{1 \text{ ton}}{2000 \text{ lbs.}}$$

$$\text{TPY} = 0.21 \text{ for VOCs}$$

* Building capacity

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Revision No. 0

Date of Revision N/A

ATTACHMENT 8

**Calculation of VOC Emission from Recrystallization and
Coating of RDX (37-0028-82)**

HOLSTON DEFENSE CORPORATION

SKETCH AND COMPUTATION SHEET

44-3124
(5-72)

SUBJECT Calculations for PES# B-G3-3

SAMPLE (Cyclohexanone) Point A

USE THIS SHEET FOR ALL IMPORTANT COMPUTATIONS

No. _____

JOB NO.	BLDG
PREPARED BY <u>R. Lowe</u>	DATE
APPROVED BY	DATE
APPROVED BY	DATE
DATE REQUIRED	
DRAWINGS REF.	
SHEET NO. <u>1</u>	OF

PES# B-G3-3

I.D. # A (separator & vent condenser) for
cyclohexanone

Batch size = 25,000 lbs. water-saturated cyclohexanone

% cyclohexanone in batch = 5

$$0.05 \times 25,000 \text{ lbs.} = 1250 \text{ lbs. / batch}$$

% Eff. of condenser = 99

$$0.01 (1250) = 12.5 \text{ lbs cyc. / hr}$$

$$\frac{12.5 \text{ lbs cyc}}{\text{hr}} \times \frac{24 \text{ hr}}{\text{da}} = 300 \text{ lbs cyc / da} = 1.04 \text{ lbs / hr average}$$

which is at or below that value
shown in original permit.

HOLSTON DEFENSE CORPORATION

SKETCH AND COMPUTATION SHEET

No. _____

-3124
5-72)

SUBJECT Calculations, Point A (MEK)
(SAMPLE) B-G3-3

USE THIS SHEET FOR ALL IMPORTANT COMPUTATIONS

JOB NO.	BLDG
PREPARED BY	DATE
APPROVED BY	DATE
APPROVED BY	DATE
DATE REQUIRED	
DRAWINGS REF.	
SHEET NO.	OF

Point A is condenser vent exhaust

% MEK in batch = 16.3 (liquid basis only)

$$\text{mol. fr. (100 lb. basis)} = \frac{16.3/72}{16.3/72 + 83.7/18} = \frac{.226}{0.226 + 4.65} = 0.046$$

mol. fr. water = 0.954

v.p. of MEK @ 90°F = 103 mm Hg
" " water " " = 36 " "

$$\text{vol. fr. (MEK)} = \frac{103(.046)}{[36(.954) + 103(.046)]} = \frac{4.738}{39.082} = 0.121$$

$$\text{Density of MEK @ 90°F} = \frac{72 \text{ lbs/mol}}{359 \text{ ft}^3/\text{mol}} \times \frac{492^\circ\text{R}}{550^\circ\text{R}} = 0.179 \text{ lbs/ft}^3$$

$$\text{Mass rate to condenser} = 6.85 \frac{\text{ft}^3}{\text{min}} \times 0.121 \times 0.179 \frac{\text{lbs}}{\text{ft}^3} \times 60 \frac{\text{min}}{\text{hr}} = 8.9 \frac{\text{lbs}}{\text{hr}}$$

Condenser is 99% efficient (from Property Data)

$$\therefore 0.01(8.9 \text{ lbs/hr}) = 0.09 \text{ lbs/hr versus permit value of } 0.25 \text{ lbs/hr.}$$

HOLSTON DEFENSE CORPORATION

SKETCH AND COMPUTATION SHEET

4-3124
5-72)

No. _____

SUBJECT Calculations, B-G3-3 Point B
(Sample) for MEK

USE THIS SHEET FOR ALL IMPORTANT COMPUTATIONS

JOB NO.	BLDG
PREPARED BY	DATE
APPROVED BY	DATE
APPROVED BY	DATE
DATE REQUIRED	
DRAWINGS REF.	
SHEET NO.	OF

Point B is recovered solvent wagon

m.w. of MEK = 72

Recovered solvent wagon is ~98% MEK

$$\text{mol. fr. (100 lb. basis)} = \frac{98/72}{98/72 + 2/18} = \frac{1.36}{1.36 + 0.11} = 0.925$$

$$\therefore \text{mol. fr. water} = 0.075$$

$$\begin{aligned} \text{V.p. of MEK @ } 90^{\circ}\text{F} &= 103 \text{ mm Hg} \\ \text{" " water " " " " } &= 36 \text{ mm Hg} \end{aligned}$$

$$\text{Vol. fr. (MEK)} = \frac{103(.925)}{103(.925) + 0.075(36)} = \frac{95.275}{95.275 + 2.7} = 0.972$$

$$\text{Density of MEK @ } 90^{\circ}\text{F} = \frac{72 \text{ lbs/mol}}{359 \text{ ft}^3/\text{mol}} \times \frac{492^{\circ}\text{R}}{550^{\circ}\text{R}} = 0.179 \text{ lbs/ft}^3$$

$$\text{Mass rate} = 0.01 \frac{\text{ft}^3}{\text{min}} \times 0.972 \times 0.179 \frac{\text{lbs}}{\text{ft}^3} \times 60 \frac{\text{min}}{\text{hr}} = 0.10 \text{ lbs/hr}$$

which is less than the permit value of 0.127 lbs/hr.

HOLSTON DEFENSE CORPORATION

SKETCH AND COMPUTATION SHEET

No. _____

3124
5-72)

SUBJECT Calculations B-G3-3, Point A
(SAMPLE) for n-Octane

USE THIS SHEET FOR ALL IMPORTANT COMPUTATIONS

JOB NO.	BLDG
PREPARED BY	DATE
APPROVED BY	DATE
APPROVED BY	DATE
DATE REQUIRED	
DRAWINGS REF.	
SHEET NO. 1	OF

90 n-Octane in liquid = 1.5 m.W. of n-Octane = 114

$$\text{mol. fr. (100 lb. basis)} = \frac{1.5/114}{1.5/114 + 98.5/18} = \frac{0.013}{0.013 + 5.472}$$

$$\text{mol. fr.} = 0.0023$$

$$\text{mol. fr. water} = 0.9977$$

V.p. of Octane @ 90°F = 20 mm Hg
" " water " " = 36 "

$$\text{vol. fr.} = \frac{0.0023(20)}{0.0023(20) + 0.9977(36)} = \frac{0.046}{0.046 + 35.917}$$

$$\text{vol. fr.} = 0.00128$$

$$\text{Density of n-Octane @ 90°F} = \frac{114 \text{ lbs/mol}}{359 \text{ ft}^3/\text{mol}} \times \frac{492^\circ\text{R}}{550^\circ\text{R}} = 0.284 \text{ lb./ft}^3$$

flowrate = 4.72 cfm from permit

$$\begin{aligned} \text{mass rate} &= 4.72 \frac{\text{ft}^3}{\text{min}} \times 0.00128 \times 0.284 \frac{\text{lb}}{\text{ft}^3} \times \frac{60 \text{ min}}{\text{hr}} \\ &= 0.10 \text{ lbs/hr} \end{aligned}$$

Condenser is 99% efficient (estimated).

$$\therefore 0.10 \text{ lbs/hr} \times 0.01 = 0.001 \text{ lbs/hr, less than permit value.}$$

ATTACHMENT 9

**Calculation of VOC Emission from Recrystallization and
Coating of RDX (37-0028-85)**

HOLSTON DEFENSE CORPORATION

SKETCH AND COMPUTATION SHEET

3124
5-72)

SUBJECT Calculations for PES# B-64-3

SAMPLE

USE THIS SHEET FOR ALL IMPORTANT COMPUTATIONS

No. _____

JOB NO.	BLDG
PREPARED BY <u>R. Lowe</u>	DATE
APPROVED BY	DATE
APPROVED BY	DATE
DATE REQUIRED	
DRAWINGS REF.	
SHEET NO. <u>1</u>	OF

PES# B-64-3 I.D.# A (separator & vent condenser) for cyclohexanone

Batch size = 25,000 lbs. water-saturated cyclohexanone

% cyclohexanone in batch = 5 (nominal value)

$$0.05 \times 25000 \text{ lbs.} = 1250 \text{ lbs./batch}$$

% Eff. of condenser = 99

$$0.01 (1250) = 12.5 \text{ lbs. cyc./ba}$$

$$\frac{12.5 \text{ lbs. cyc.}}{\text{ba}} \times \frac{1 \text{ ba}}{\text{da}} = 25 \text{ lbs cyc/da} = 1.04 \text{ lbs/hr average}$$

which is at or below that value
shown in original permit.

ATTACHMENT 10

**Calculation of VOC Emission from Lacquer Preparation
(37-0028-92)**

TANK AIR EMISSION CALCULATIONS				
for estimating air emissions from process tanks				
Tank Identification	B-150-1	B-150-1		
Emission Point ID	**A or C	*B or D		
Tank Contents	VOC	VOC		
Molecular Weight	72	72		
Vapor Press. of liquid, PSI	1.9	1.9		
Tank Diameter, ft	5.5	5.5		
Average Vapor Space, ft	2	2		
Avg diurnal temp change, F	22	22		
Paint factor (Table 4.3-2)	1.39	1.39		
Adjustment factor for tk size	0.25	0.25		
Product factor, breathing	1	1		
Product factor, working	1	1		
No. tank turnovers/year	3920	1635		
Turnover factor, 365/yr = .25	0.25	0.25		
Tank capacity, gallons	1,075	1,075		
B1	8.49	8.49		
BREATHING LOSSES	20	20		
WORKING LOSSES	3459	1443		
TOT. TK EMISSIONS, LB/YR	3479	1462		
Emissions, lbs./h	0.414114012	1.740910834		
		*2.4 hrs/day operation		
		**24 hrs/day operation		
VOC	B or D + A or C = 1.74 + 0.41 = 2.15 lbs/hr = 4941 lbs/yr = 2.47 TPY			
Total VOC:		2.15 lbs/hr	2.47 TPY	

Permit Number: 558406
No. of pages: 2

Expiration Date: June 29, 2014

ATTACHMENT 11

**Calculation of VOC Emission from Filtering and Washing of
RDX Slurry (37-1028-37)**

EMISSIONS CALCULATION FORM-GENERAL

PES #: B-E8-1

VENT OR STACK I. D. : A

PROCESS: Continuous RDX Filtration/Wash

Reference: Report # HDC- 28- 76; Evaluation of Prototype Building E-1; Final Engineering Report

Acetic Acid rate from scrubber = 0.04 lbs./min. = 2.4 lbs./hr. = 10.0 TPY (Point A)

This rate is based on material balance data from building operations at the projected maximum rate and is used as the basis for the E-8, I. D. # A emission.

Fugitive emission calculations: IEU.

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Revision No. 0

Date of Revision N/A

ATTACHMENT 12

**Calculation of VOC Emission from Washing and Filtration of
RDX (37-1028-39)**

JOB NO. <u>B-E10-1</u>	BLDG
PREPARED BY <u>M. K. Marsh</u>	DATE <u>2/21/76</u>
APPROVED BY	DATE
APPROVED BY	DATE
DATE REQUIRED	
DRAWINGS REF.	
SHEET NO. <u>1</u>	OF <u>2</u>

SUBJECT Scrubber Emissions - Emission Pt. A1B

USE THIS SHEET FOR ALL IMPORTANT COMPUTATIONS

Basis: E-1

Reference: Report No. HDC-28-76, Evaluation of Prototype Continuous Filtration/Wash Facility (Building E-1, HARP) by L. E. Wolverton, December, 1976.

FEED CONDITIONS:

$$\begin{aligned} \text{HOAc Feed} &= \dot{m}_{\text{soil filter}} + \dot{m}_{\text{vacuum exhaust}} \\ &= 0.7 \text{ lb/min} + 0.4 \text{ lb/min} \\ &= 1.1 \text{ lb/min (60 min/hr)} \\ &= 66 \text{ lb/hr} \end{aligned}$$

EXIT CONDITIONS:

$$\text{HOAc exit} = 66 \text{ lb/hr} (1 - .96 \text{ efficiency}) = \underline{2.64 \text{ lb/hr}}$$

$$\rho_{\text{HOAc}} @ 85^\circ\text{F}, 1 \text{ atm} = \frac{60}{359} \times \frac{492}{545} = 0.1509 \text{ lb/ft}^3$$

$$\text{HOAc CFM @ } 85^\circ\text{F}, 1 \text{ atm} = \frac{2.64 \text{ lb/hr}}{(0.1509 \text{ lb/ft}^3)(60 \text{ min/hr})} = 0.29$$

$$\text{Total SCFM (design)} = 2200$$

$$\text{Total CFM @ } 85^\circ\text{F} = 2200 \left(\frac{545}{492} \right) = 2437$$

$$\text{Total CFM @ } 70^\circ\text{F} = 2200 \left(\frac{530}{492} \right) = 2370 \text{ (wet basis)}$$

$$\text{H}_2\text{O content of saturated air @ } 85^\circ\text{F}, 1 \text{ atm} = 0.027 \text{ lb H}_2\text{O/lb air (Perry's, 5th ed., p. 3-69)}$$

$$Y_{\text{H}_2\text{O}} = \frac{\left(\frac{0.027}{18.02} \right)}{\left(\frac{0.027}{18.02} \right) + \frac{1}{29}} = 0.042$$

(ASSUME MOLE FRACTION = VOL. FRACTION)
(ASSUME NEGLEGIBLE EFFECTS DUE TO H₂O)

$$\text{H}_2\text{O CFM @ } 85^\circ\text{F} = 0.042 (2437) = 102$$

$$\text{F.C.-2 H}_2\text{O CFM @ } 70^\circ\text{F} = 0.042 (2370) = 100$$

ATTACHMENT 13

**Calculation of Carbon Monoxide Emission from Plasma Arc
Cutting Machine (37-1029-03)**

EMISSIONS CALCULATION FORM-GENERAL

PES #: B-100-1

VENT OR STACK I.D.: A

PROCESS: Calculate CO Emissions

Basis: 0.5% vol. composition CO, per TM 85-HO,
dated 9-16-84.

Flow rate 2563 ft^3/min @ 80°F (540°R)

Mol Weight CO = 28

Calculations:

$$2563 \times \frac{492}{540} \times 60 \div 359 \times 28 \times 0.005$$

$$= 56 \text{ lb/hr}$$

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Revision No. 0

Date of Revision N/A

ATTACHMENT 14

**Calculation of VOC and Nitrogen Oxides Emissions from RDX and HMX
Production (37-1029-09)**

EMISSIONS CALCULATION FORM-GENERAL

PES #: B-D5-1

VENT OR STACK I. D. : L

PROCESS: Scrubber for HMX/RDX Nitrolysis

I. Scrubber Efficiency Calculations, VOC

- Basis:
- Acetic Acid is principal VOC
 - Scrubbers-in series discharge rates from report
THSE-R-ES-94-676-001B= 0.45 lb/hr maximum
 - Liquid effluent from technical memo 94-4
 - 0.4 gpm @ 7.9% acetic acid on simmer system.
 - 3.5 gpm @ 2.63% acetic acid on reactor/age system

$$\begin{aligned}\text{Acetic Acid captured} &= 0.4 \times 8.34 \times 0.079 \text{ lb/min.} = 0.26 \text{ lb/min} \\ &+ 3.5 \times 8.34 \times 0.0263 \text{ lb/min} = \underline{0.77} \text{ lb/min} \\ \text{Total Acid} & \quad \quad \quad 1.03 \text{ lb/min}\end{aligned}$$

$$\begin{aligned}\text{Scrubber efficiency} &= 1 - (0.45/60 \text{ lb/min} - 1.03 \text{ lb/min}) \\ &= 0.99 \text{ or } 99\% \text{ efficiency}\end{aligned}$$

II. No_x Efficiency Calculations

- Basis:
- Technical Memo B7-11: measured 1.81 lb/hr No_x from reactor scrubber at D-6 and 0.78 lb/hr NO_x from simmer scrubber.
 - A. F. Polahar write-it, 8/18/86, "D-5 Reactor/Age Scrubber Evaluation" determined NO_x removal efficiency between 20 to 30%. Use 20%.
 - Two scrubbers in series allow (100% - 20%)² passage No_x

$$\text{NO}_x \text{ Efficiency} = 64\%$$

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Revision No. 0

Date of Revision N/A

ATTACHMENT 15

**Calculation of Particulate Emissions
from Lime Silo (37-0028-98)**

EMISSIONS CALCULATION FORM-GENERAL

PES #: 224B

VENT OR STACK I.D.: A

PROCESS: Calculate Particulate Emissions

Basis: APC V.10

Vendor spec. says filters remove 100%

> 4 μ . Particle size spec. allows

0.01% < 4 μ .

50,000 lbs. per truckload & 2 hrs to unload

Calculations:

$$54 \text{ hr/yr} \times \frac{50,000 \times 0.0001}{2} = 135 \text{ lb/yr}$$

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Revision No. 0

Date of Revision N/A

ATTACHMENT 16

AP-42 Fifth Edition Tables for Fuel Oil Combustion Emission Factors
Revised July, 1998

Expiration Date:

Permit number: 558406
No. of Pages: 3

Table 1.3-1. CRITERIA POLLUTANT EMISSION FACTORS FOR FUEL OIL COMBUSTION^a

Firing Configuration (SCC) ^a	SO ₂ ^b		SO ₃ ^c		NO _x ^d		CO ^e		Filterable PM ^f	
	Emission Factor (lb/10 ³ gal)	EMISSION FACTOR RATING	Emission Factor (lb/10 ³ gal)	EMISSION FACTOR RATING	Emission Factor (lb/10 ³ gal)	EMISSION FACTOR RATING	Emission Factor (lb/10 ³ gal)	EMISSION FACTOR RATING	Emission Factor (lb/10 ³ gal)	EMISSION FACTOR RATING
Boilers > 100 Million Btu/hr										
No. 6 oil fired, normal firing (1-01-004-01), (1-02-004-01), (1-03-004-01)	157S	A	5.7S	C	47	A	5	A	9.19(S)+3.22	A
No. 6 oil fired, normal firing, low NO _x burner (1-01-004-01), (1-02-004-01)	157S	A	5.7S	C	40	B	5	A	9.19(S)+3.22	A
No. 6 oil fired, tangential firing, (1-01-004-04)	157S	A	5.7S	C	32	A	5	A	9.19(S)+3.22	A
No. 6 oil fired, tangential firing, low NO _x burner (1-01-004-04)	157S	A	5.7S	C	26	E	5	A	9.19(S)+3.22	A
No. 5 oil fired, normal firing (1-01-004-05), (1-02-004-04)	157S	A	5.7S	C	47	B	5	A	10	B
No. 5 oil fired, tangential firing (1-01-004-06)	157S	A	5.7S	C	32	B	5	A	10	B
No. 4 oil fired, normal firing (1-01-005-04), (1-02-005-04)	150S	A	5.7S	C	47	B	5	A	7	B
No. 4 oil fired, tangential firing (1-01-005-05)	150S	A	5.7S	C	32	B	5	A	7	B
No. 2 oil fired (1-01-005-01), (1-02-005-01), (1-03-005-01)	157S	A	5.7S	C	24	D	5	A	2	A
No. 2 oil fired, LNB/FGR, (1-01-005-01), (1-02-005-01), (1-03-005-01)	157S	A	5.7S	A	10	D	5	A	2	A

Table 1.3-1. (cont.)

Firing Configuration (SCC) ^a	SO ₂ ^b		SO ₃ ^c		NO _x ^d		CO ^e		Filterable PM ^f	
	Emission Factor (lb/10 ³ gal)	EMISSION FACTOR RATING	Emission Factor (lb/10 ³ gal)	EMISSION FACTOR RATING	Emission Factor (lb/10 ³ gal)	EMISSION FACTOR RATING	Emission Factor (lb/10 ³ gal)	EMISSION FACTOR RATING	Emission Factor (lb/10 ³ gal)	EMISSION FACTOR RATING
Boilers < 100 Million Btu/hr										
No. 6 oil fired (1-02-004-02/03) (1-03-004-02/03)	157S	A	2S	A	55	A	5	A	10	B
No. 5 oil fired (1-03-004-04)	157S	A	2S	A	55	A	5	A	9.19(S)+3.22	A
No. 4 oil fired (1-03-005-04)	150S	A	2S	A	20	A	5	A	7	B
Distillate oil fired (1-02-005-02/03) (1-03-005-02/03)	142S	A	2S	A	20	A	5	A	2	A
Residential furnace (A2104004/A2104011)	142S	A	2S	A	18	A	5	A	0.4 ^g	B

^a To convert from lb/10³ gal to kg/10³ L, multiply by 0.120. SCC = Source Classification Code.

^b References 1-2,6-9,14,56-60. S indicates that the weight % of sulfur in the oil should be multiplied by the value given. For example, if the fuel is 1% sulfur, then S = 1.

^c References 1-2,6-8,16,57-60. S indicates that the weight % of sulfur in the oil should be multiplied by the value given. For example, if the fuel is 1% sulfur, then S = 1.

^d References 6-7,15,19,22,56-62. Expressed as NO_x. Test results indicate that at least 95% by weight of NO_x is NO for all boiler types except residential furnaces, where about 75% is NO. For utility vertical fired boilers use 105 lb/10³ gal at full load and normal (>1.5%) excess air. Nitrogen oxides emissions from residual oil combustion in industrial and commercial boilers are related to fuel nitrogen content, estimated by the following empirical relationship: lb NO₂/10³ gal = 20.54 + 104.39(N), where N is the weight % of nitrogen in the oil. For example, if the fuel is 1% nitrogen, then N = 1.

^e References 6-8,14,17-19,56-61. CO emissions may increase by factors of 10 to 100 if the unit is improperly operated or not well maintained.

^f References 6-8,10,13-15,56-60,62-63. Filterable PM is that particulate collected on or prior to the filter of an EPA Method 5 (or equivalent) sampling train. Particulate emission factors for residual oil combustion are, on average, a function of fuel oil sulfur content where S is the weight % of sulfur in oil. For example, if fuel oil is 1% sulfur, then S = 1.

^g Based on data from new burner designs. Pre-1970's burner designs may emit filterable PM as high as 3.0 lb/10³ gal.

